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Towards a Thomistic enactivist and embodied view of perception: Cornelio Fabro's *sensibili per accidens* as object of *vis cogitativa* in dialogue with Maurice Merleau-Ponty's phenomenology, J. J. Gibson's ecological psychology, and Alva Noë's sensorimotor enactivism

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Dissertazione per il terzo ciclo

Roma, 5 maggio di 2025

Abbreviations

Works of Thomas Aquinas

ST	*Summa Theologicae*
SCG	*Summa Contra Gentiles*
DA	*Commentary on Aristotle's De Anima*
In Ethic.	*Commentary on Aristotle's Nicomachean Ethics*
In Sent./Super Sent.	*Commentary on the Sentences of Peter Lombard*

Works of Cornelio Fabro

«AEMT»	«Antropologia esistenziale e metafisica tomistica»
BIT	*Breve Introduzione al Tomismo* (either Italian original, *i*, or Spanish translation, *s*)
DEAE	*Dall'essere all'esistente* – 2004 Marietti edition
EC	*Enciclopedia Cattolica*
FP	*Fenomenologia della Percezione*
«IRPS»	«Idealismo e Realismo nella percezione sensoriale»
IST	*Introduzione a san Tommaso*
«KPP»	«Knowledge and perception in aristotelic-thomistic psychology»
«KRET»	«Karl Rahner e l'ermeneutica tomistica (La risoluzione-dissoluzione della metafisica nell'antropologia)»
LA	*L'anima* (either Italian original, *i*, or Spanish translation, *s*)
NMP	*La Nozione Metafisica della Partecipazione*
«OPNC»	«L'origine psicologica della nozione di causa»
PC	*Partecipazione e causalità* (either Italian, *i*, or French, *f*)
«PISM»	«La percezione intelligible dei singolari materiali»
PP	*Percezione e pensiero* (either Italian original, *i* or Spanish translation, *s*)

«PPS»	«Il problema della percezione sensoriale»
PRDH	*La prima riforma della dialettica hegeliana*
SAKR	*La svolta antropológica di Karl Rahner*
«TERF»	«Il trascendentale esistenziale e la riduzione al fondamento. La fine della metafisica e l'equivoco della teologia trascendentale»

Unless otherwise noted, the citation is from the Italian edition published through ED.IVI, which has the advantage of showing the changes made throughout the various editions. Likewise, English translations of Aquinas' works are taken from the Aquinas Translation Project at Aquinas.cc, and English translations of Fabro's works are often from draft translations of the Cornelio Fabro Cultural Project.

Introduction

Of all the interior senses in Aquinas's philosophical anthropology, the *vis cogitativa*, the cogitative power, is the least understood and most controversial. Philosophers have called it "an embarrassment"[1], "a forgotten sense"[2], "unnecessary"[3], while others confuse it or ignore it outright[4]. Even those who mention it often simply repeat Aquinas's scant treatment of it, limiting themselves to the texts of the *Summa Theologica* and perhaps the commentary on Aristotle's *De Anima*. Yet, the few authors who have tried to delve deeply into the *vis cogitativa* see in it "a necessary condition for making Aquinas's entire philosophy of mind hang together in a coherent and structurally significant way", the way in which "Aquinas saves his epistemological realism"[5].

Part of the difficulty stems from Aquinas's unsystematic examination of the power itself: as Mark J. Barker observes in his 2007 *The Cogitative Power: Objects and Terminology*, while there is no systematic treatment of the *vis cogitativa*, "there are at least a hundred references to the cogitative and estimative in one form or another in Aquinas's extant corpus"[6]. Furthermore, as Barker also notes, "Little or no sustained

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[1] D. FREDE, «Aquinas on Phantasia», in D. PERLER (ed.), *Ancient and Medieval Theories of Intentionality (Studien Und Texte Zur Geistesgeschichte Des Mittelalters)*, BRILL, Leiden 2001, 170. Cited by A. J. LISSKA, «A Look at Inner Sense in Aquinas: A Long-Neglected Faculty Psychology», *Proceedings of the ACPA* 80 (2007), 1.

[2] J. PEGHAIRE, «A Forgotten Sense, the Cogitative according to St. Thomas Aquinas», *The Modern Schoolman* 20/3 (1943), 123–140, 210–229.

[3] D. DE VORGES, «L'estimative», *Revue néo-scolastique* 11/44 (1904), 433-454.

[4] See E. STUMP, *Aquinas*, Routledge, London 2005, 248. See the citation and subsequent critique in A. J. LISSKA, *Aquinas's Theory of Perception*, Oxford University Press, Oxford 2016, 194.

[5] LISSKA, «A Look at Inner Sense in Aquinas», 13; LISSKA, *Aquinas's Theory of Perception*, 272.

[6] M. J. BARKER, *The Cogitative Power: Objects and Terminology*, ProQuest Information and Learning Company, Ann Arbor 2007, 6.

investigation on the topic of the cogitative took place from the time of Aquinas's death up to Klubertanz's *The Discursive Power*"[7], published in 1952.

However, since that time, recent research has attempted to delve more deeply into this mysterious power, and, in particular, has seen the possibility of placing Thomism in contact with psychology and neuroscience by means of the cogitative power.

Structure

This dissertation contains an introduction, four chapters, and a conclusion, divided as follows:

- **a.** The introduction: this section will frame the objective, originality, and scientific value, provide the scope and limitations, explain and justify the methodology to be used, and, lastly, consider the *status quaestionis* of this thesis. The section regarding the methodology is quite extensive, given that this thesis is interdisciplinary, and hence the groundwork must be laid to ensure this is done while respecting the different insights and methods of the individual sciences.
- **b.** "The *Vis Cogitativa* of Thomas Aquinas and its Object according to Cornelio Fabro": this first chapter, primarily expository in nature, considers both the Thomistic texts as well as secondary literature regarding the role of the cogitative power in perception of being. More specifically, the principal considerations will be the understanding Cornelio Fabro brings to this discussion[8]. In accord with our

[7] BARKER, *The Cogitative Power*, 7.

[8] Cornelio Fabro (1911-1995), Catholic priest and religious of the Congregation of the Sacred Stigmata (Stigmatine), is one of the most important Italian philosophers and theologians of the 20th century. For more details about his life, see E. FONTANA, *Introduction to Cornelio Fabro*, IVE Press, Chillum, MD 2016 and R. GOGLIA, *Cornelio Fabro: A Biographical, Chronological, and Thematic Profile from Unpublished Documents, Archived Notes, and Testimonials*, IVEPress, Chillum, MD 2023.

methodology, we begin with the *status quaestionis* regarding the acceptance of Fabro's doctrine on the cogitative, to then consider the methodology of Fabro's metaphysics, the theoretical context of his works, and central concepts in Fabro's understanding. These are epistemological participation, perception and sensations, *forma* and *intentio*, the *sensibili per accidens*, and the *experimentum*. With this foundation, the particular functions of the cogitative power are examined, and objections in the secondary literature to Fabro's position are answered.

c. "Phenomenology and the Body according to the thought of Maurice Merleau-Ponty": this second chapter introduces the thought of Merleau-Ponty regarding perception and the body. In accord with our methodology, we begin with the *status quaestionis* regarding the possibility of a fruitful collaboration between Aquinas and Merleau-Ponty, to then consider the methodology of Merleau-Ponty's phenomenology, the theoretical context of his works and the influences that affected his thought, namely, Husserl, Gestalt psychology, and Bergson. We will then consider the central concepts in Merleau-Ponty's phenomenology: these are perception, the body, the Life-World [*Lebenswelt*], the past, language, body schema (or image), and phenomenal versus objective. With this foundation, points of possible insights and enhancements to Fabro's understanding of the *vis cogitativa* are considered: perception as embedded in a world, a greater understanding of the perceived object, the cogitative power and the phantasm, and the body schema.

d. "Affordances in J. J. Gibson's School of Ecological Psychology": this third chapter introduces the thought of J. J. Gibson regarding perception, and particularly his notion of affordances. In accord with our methodology, we begin with the *status quaestionis* regarding the possibility of a fruitful collaboration between Aquinas and Gibson, to

then consider the methodology of Gibson's ecological psychology, the theoretical context of his works and the influences that affected his thought, namely, pragmatism and radical empiricism, behaviorism, Gestalt psychology, and phenomenology, and central concepts in Gibson's ecological psychology: these are perception and affordances. With this foundation, points of possible insights and enhancements to Fabro's understanding of the *vis cogitativa* are considered: the importance of movement and active exploration for perception, affordances as relations, attention, indirect perception and language, and learning.

e. "Movement and Action in Perception according to the Sensorimotor Enactivism of Alva Noë": this fourth chapter introduces the thought of Alva Noë regarding perception and, in particular, his version of sensorimotor enactivism. In accord with our methodology, we begin with the *status quaestionis* regarding the possibility of a fruitful collaboration between Aquinas and Noë, to then consider the methodology of Noë's sensorimotor enactivism, the theoretical context of his works and the influences that affected his thought, namely, enactivism is general and its various branches, and central concepts in Noë's thought: these are perception, sensorimotor contingencies, and enactivism. With this foundation, points of possible insights and enhancements to Fabro's understanding of the *vis cogitativa* are considered: intramodal and intermodal sensation, multi-sensory integration, memories and false memories, the *experimentum*, affective passions (love, pain, fear, and anxiety), and plasticity.

f. This thesis ends with a conclusion examining the work's significant conclusions, interesting points, and indications for future study and research.

g. The appendices and bibliography provide additional information regarding sources.

Objective, originality, and scientific value

It is precisely the investigation of this possibility that is the focus of this dissertation, namely, to examine the perception of being as understood by Thomas Aquinas in light of the advances made by pure phenomenology, experimental psychology, and neuroscience. More specifically, it will examine how certain elements of enactivist and embodied view of perception can shed light on the object of the cogitative power, as well those views as a whole, with the Thomistic vision of perception as understood by modern Thomists.

This work is original in that few Thomists have engaged in critical discussions with psychology, neuroscience, and phenomenology. The few who have, for instance, Juan José Sanguineti[9] and Daniel De Haan[10], find the possibility for engagement with what could be called phenomenology of body (Maurice Merleau-Ponty), ecological psychology (J. J. Gibson and his school), and enactivist neuroscience (Daniel Hutto, Alva Noë, Francisco Varela, and others). Merleau-Ponty emphasizes the role of the body in perception, while Gibson and Noë emphasize the importance of the whole environment on perception. However, while these few Thomists point out possibilities for research, no serious research or profound engagement has been undertaken; perhaps the most direct engagement can be found in Philip Larrey's short but insightful «La percezione in Cornelio Fabro e le neuroscienze», which indicates the importance of the cogitative power[11]. It is this unexplored realm that this dissertation seeks to delve into.

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[9] See the excellent work by J. J. SANGUINETI, *Neuroscienza e filosofia dell'uomo*, Edizioni Santa Croce, Rome 2014, which presents a history of neuroscience and Thomistic thought. It mentions our three major schools, but there is a minimal amount of engagement with Aquinas. See also J. J. SANGUINETI, «La cogitativa en Cornelio Fabro. Para una filosofía no dualista de la percepción», *Studium. Filosofía y Teología* 34 (2015), 437–458. The article is available in English translation as J. J. SANGUINETI, «The Cogitative in Cornelio Fabro: For a Non-dualist Philosophy of Perception», *Dianoetikon* (2020), 187–204.

[10] D. D. DE HAAN, *Aquinas and James Gibson on the Senses Considered as Perceptual Systems*, in *Symposium Thomisticum* (2017).

[11] P. LARREY, «La percezione in Cornelio Fabro e le neuroscienze», *Aquinas* 55/3 (2012), 343–354.

The scientific value of this dissertation lies in constructing the first critical examination and dialogue with these relatively recent schools of neuroscience. A "philosophy of embodied and embedded perception" with Thomistic roots would provide philosophers with the tools needed to engage in discourse with the empirical sciences, as well as providing the empirical sciences with an alternative philosophical foundation to the common materialist and reductionist views.

Scope and limitations

This thesis will not examine the historical development of the *vis cogitativa*, as this has been aptly done by many others before us, such as Wolfson[12], Klubertanz[13], Dumont[14], García Jaramillo[15], and Di Martino[16]. Nor will we be engaging all the many possible interpretations of the *vis cogitativa* presented by scholars, although most scholars agree regarding the power's fundamental aspects.

Rather, this thesis will assume the perspective of Cornelio Fabro as its understanding of the "Thomistic position". The reasons for doing so are manifold. First, notwithstanding critiques, praise for Fabro's work regarding perception in general and the cogitative power in particular has been widespread: though critical of his historical analysis, Klubertanz notes "Cornelio Fabro in two articles tries to establish the vis cogitativa as the faculty of perception. In many respects Fabro's work is valuable; he seems to have been the first modern writer to correlate the experimentum, the

[12] H. A. WOLFSON, «The Internal Senses in Latin, Arabic, and Hebrew Philosophic Texts», *H. Theolo. Review* 28/2 (1935), in 10.1017/s0017816000022938 [31-1-2020], 69–133.

[13] G. P. KLUBERTANZ, *The discursive power; sources and doctrine of the vis cogitativa according to St. Thomas Aquinas*, Modern Schoolman, St. Louis 1952.

[14] R. E. DUMONT, *An Historical Sketch of the "Cogitative Force" in the Middle Ages: Its Transition Through the Orient to the Occident*, ProQuest LLC, Ann Arbor 1952.

[15] M. A. GARCÍA JARAMILLO, *La doctrina de la cogitativa en Tomás de Aquino y sus fuentes*, EUNSA, Pamplona 1997.

[16] C. DI MARTINO, *Ratio particularis. Doctrines des sens internes d'Avicenne à Thomas d'Aquin*, Librairie Philosophique J Vrin, Paris 2012.

Thomistic cogitative, and modern experimental data on perception"[17]. Far more enthusiastic is the praise of Mario Sacchi, who writes "The most profound exposition regarding the cogitative power's functions can be read in Fr. C. Fabro's magnificent volume, *Percezione e pensiero*"[18].

More recently, Barker notes "Although not directly on the topic of the cogitative, Cornelio Fabro's monumental *Percezione e Pensiero* may contain the most valuable work on the cogitative since Klubertanz, in depth of insight if not in quantity. The recent Anglo-Saxon literature also seems ignorant of the important work done on the cogitative's role in perception in *Percezione e Pensiero*"[19]. Barker rightly notes the pre-eminence of the *vis cogitativa* in Fabro's text: the word *cogitative* appears almost 300 times in *Percezione e Pensiero*, or roughly once every page and a half. However, as will be shown, it is not simply the Anglo-Saxon world that has neglected Fabro's work; even research done in Romance languages fails to adequately engage the Italian philosopher's thought, as will be shown in the *status questionis*.

Fabro's position is also well-suited to this thesis as the Stigmatine was well-versed not only in philosophy and theology, but also psychology and biology. Fabro's two major works on epistemology, *La fenomenologia della percezione* (1941, 2nd ed. 1961) and *Percezione e pensiero* (1941, 2nd ed. 1962), show clearly the author's

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[17] G. P. KLUBERTANZ, *Vis cogitativa according to St. Thomas Aquinas: Sources and Doctrines*, University of Toronto, Toronto 1947, 129. Underlines in original. However, in KLUBERTANZ, *The discursive power*, 9, the praise for Fabro is notably attenuated: "Cornelio Fabro in two articles tried to establish that the *vis cogitativa* is the faculty of perception. He seems to have been the first to group together the *cogitativa*, the *experimentum*, and modern experimental data on perception. In his view of the historical relationships, texts of Averroes can be used to clarify those of St. Thomas". However, as will be explained later, it is unlikely Klubertanz had direct access to Fabro's work, and hence bases his assessment of the Italian philosopher on one translated article that is, in fact, part of a four-article series.

[18] M. E. SACCHI, «La participación de la inteligencia en la experiencia sensible», *Sapientia* 28/110 (1973), 285.

[19] BARKER, *The Cogitative Power*, 11.

breadth of knowledge and an uncanny ability to synthesize Aquinas and Aristotle with contemporary thought and psychological research[20].

Hence, by providing an examination of the texts wherein Fabro speaks of the cogitative power, including texts that have been overlooked, it is our hope that the insights that others have glimpsed in his work might be brought fully to light.

Likewise, our aim is not to present a comprehensive view of Fabrian gnoseology. The impressive volume by Pablo Rossi, *La fundación teórica del valor del conocimiento, en el realismo tomista de Cornelio Fabro: Evolución de la gnoseología fabriana entre las obras Percezione e Pensiero y Dall'Essere all'Esistente*[21], has, in our opinion, successfully accomplished this. However, while Rossi's work does mention Fabro's comments on the *vis cogitativa*, it does not examine them in detail, nor does it seek to engage modern psychological and scientific schools. Indeed, as will be shown, several articles published prior to *Percezione e Pensiero* shed important light on Fabro's understanding of the power. Furthermore, our focus is what could be termed

[20] "[Fabro] also devoted himself to studying the natural sciences at the Universities of Padua and of Rome. [In] 1935, he obtained his licentiate in theology and, at the same time as he was studying, collaborated as an assistant professor of biology in the School of Philosophy at the Pontifical Lateran University. In 1937, he obtained his doctorate in theology from the Pontifical University of Saint Thomas [and] began his teaching career in two seemingly unrelated fields: biology and philosophy, as he was entrusted with professorships in biology, theoretical psychology, and the metaphysics seminars at the Pontifical Lateran University from 1937 until 1940; at the same time, he held a chair in biology (1938), teaching with his own notes, and served as an extraordinary professor of Metaphysics (1940), and finally as ordinary professor (1941). . . . It is fitting to comment on Father Fabro's interest for the formation of the empirical sciences in his studies, experiments, and teaching in the field of biology; to the aforementioned studies, we should also add two semesters of study in the psychology laboratory at the Catholic University of Milan (1938-1940) directed by his rector, Father [Agostino] Gemelli. Whoever has read *The Phenomenology of Perception* and *Perception and Thought*, both published in 1941, will admire the results of his investigations in the field of philosophical phenomenology that are poured out there". E. FONTANA, *Introduction to Cornelio Fabro*, IVE Press, Chillum, MD 2016, 15-16, citing *The Phenomenology of Perception*. For more on this topic, see also my introduction in C. FABRO, *The Phenomenology of Perception* (Chillum, MD: IVEPress, 2021), XIII-XXIII.

[21] P. F. ROSSI, *La fundación teórica del valor del conocimiento, en el realismo tomista de Cornelio Fabro: Evolución de la gnoseología fabriana entre las obras Percezione e Pensiero y Dall'Essere all'Esistente*, Pont. Universitatem S. Thomae, Rome 2015.

the "material" processes of perception, as opposed to the "spiritual" processes undertaken by the intellect, particularly in the knowledge of *esse ut actus essendi* and in the act of faith.

A similar distinction could be raised regarding José Vidal de Amorim's thesis *O Itinerário filosófico de Cornelio Fabro da* Fenomenologia da Percepção *à* Antropologia Metafísica[22]. Amorim also mentions the cogitative power, and while his thesis is not as thorough as Rossi's, he did attempt some sort of engagement with Merleau-Ponty (Chapter IV, section 3, is entitled «Cornelio Fabro e Maurice Merleau-Ponty: semelhanças e dessemelhanças»). Unfortunately, as Rossi notes, the fourth chapter is missing from the published version, and all attempts to obtain the missing chapter were unsuccessful[23].

Methodology

A major difference between this work and those prior to it is the methodology. We propose an *interdisciplinary* approach, similar to the approach used by Fabro in his works on perception. It should be noted that interdisciplinarity arises from the need to coordinate different disciplines of knowledge to form an articulated whole. With the increasing specialization of fields of study, it is essential to rely on multiple disciplines in order to delve more deeply into complex problems that require the insights and methods of these disciplines, since a single discipline is incapable of embracing the entirety of the difficulty under consideration[24]. Naturally, it is of the utmost importance to determine in what way the various disciplines will be united.

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[22] J. VIDAL DE AMORIM, *O Itinerário filosófico de Cornelio Fabro da Fenomenologia da Percepção à Antropologia Metafísica*, Pontifical Gregorian University, Rome 2012.

[23] The version of the dissertation housed at the library of the Pontifical Gregorian University, where Amorim wrote and defended his thesis, is simply an extract, and all my attempts to obtain the missing chapter failed.

[24] See E. AGAZZI, «El desafío de la interdisciplinariedad: dificultades y logros», *Revista Empresa y Humanismo* 2/2 (2002), 241–252.

Interdisciplinarity is to be distinguished from both superficial study, which neglects the deepest core of problems and relies on shallow agreement between terms and fields, and from undisciplined study, which wholly neglects the differences between the various fields, be it in methodology, subject matter, or approach. In this regard, Evandro Agazzi notes, "there is no true interdisciplinarity without disciplines"[25]: far from annulling the differences between the disciplines, true interdisciplinarity can, and indeed must, make use of those distinctions in order to examine multi-faceted problems more profoundly.

The difficulty arises of bringing the various disciplines into a profound and ordered encounter, a "real common discourse"[26]. Agazzi gives a number of "fundamental conditions" in order to undertake an interdisciplinary study:

- The different criteria that each discipline uses to gather its *facts* must be specified;
- The *theoretical context* that each discipline accepts in order to explain those facts must be laid out.
- Based on these criteria and on this context, the concepts to be used must be *clearly defined*, in order to avoid equivocation[27].

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[25] AGAZZI, «El desafío», 242. Likewise, "We cannot understand interdisciplinarity without first examining the existing disciplines, since interdisciplinary approaches are always an engagement with them, and the modes of knowledge that they exclude by virtue of their separation from each other" (J. MORAN, *Interdisciplinarity*, Routledge, New York, NY 2010, 2). Nevertheless, the determination of the nature of "disciplinarity", and of the nature of the individual disciplines, are themselves issues to be examined as well. For an examination of the history and current state of disciplines within interdisciplinary study, see the chapter entitled "Disciplines" in A. HEARN – L. SALTER, *Outside the lines: Issues in Interdisciplinary Research*, McGill-Queen's Press - MQUP, Montreal 1996, 16-43.

[26] AGAZZI, «El desafío», 242.

[27] AGAZZI, «El desafío», 248-9. These criteria, which Agazzi lays out clearly, seem to be the same indicated by others who work in interdisciplinary research. For instance: "Through a decade of trial and error, we have invested heavily in creating the environment and informal rules that empower researchers across all sciences to engage effectively, despite their vastly different approaches to research design and methodology, and their differing technical vocabularies and communication cultures. This has involved some commitments: to interact in plain English (disciplinary jargon is frowned on); to foster empathy and respect for different

Elsewhere, the same author notes that interdisciplinary studies cannot be done in the abstract; the topics to be examined must be concrete, and the interdisciplinary method must imbue the whole consideration of it[28]. In order to undertake this task, two preliminary questions must be answered: what questions require an interdisciplinary approach, and how, in general terms, are the different fields of study to be structured amongst themselves?

"Complex problems" and the need for interdisciplinarity

The need for interdisciplinarity arises when a problem is too complex to be considered sufficiently by a single discipline. Rather than providing a definition of "complex", which, as will be shown, is a relative term (that is, relative with respect to the finality of the study), it is perhaps more appropriate to begin with a consideration of the *necessity* of interdisciplinarity: when is interdisciplinarity *necessary*?

In this regard, a distinction can be made between an *absolute* necessity, and a *relative* necessity. Interdisciplinarity is absolutely necessary when research or study simply cannot take place without the interaction of multiple disciplines; the subject matter to be studied, the *material object*, lays down this exigency. For instance, to study the chemical reactions and processes that take place *in vivo* in cells requires that both chemistry and biology be engaged. Without chemistry, the reactions and processes as they occur within the cells are left un-examined; without biology, the cellular *in vivo* requirement is ignored, and factors such as the cellular environment, the presence of enzymes and other catalysts, and the cellular mechanisms at work are not considered. The material object *requires* an interdisciplinary approach. Without an interdisciplinary approach, the material object *simply cannot be studied*, since it is

disciplinary norms; and to reflect on what is working in collaborative interactions" R. R. BROWN – A. DELETIC – T. H. F. WONG, «Interdisciplinarity: How to catalyse collaboration», *Nature* 525/7569 (2015), in 10.1038/525315a [16-9-2020], 317.

[28] See E. AGAZZI, «I fondamenti concettuali dell'interdisciplinarità», *Ricerche didattiche*, 22 (1972), 23.

found precisely in the overlap between disciplines; the material object *emerges* from the overlap.

Two important consequences follow. First, given the absolute necessity of the interaction, said interaction often lays the groundwork for what will become an entirely new discipline. Indeed, the aforementioned example would now fall under the realm of biological chemistry or chemical biology. At a certain point, then, this necessary interdisciplinary approach will cease to be interdisciplinary *simpliciter*, because there are no longer disciplines, but rather a new, single discipline[29]. Indeed, many of the most recent fields in the empirical sciences can trace their origins precisely to the developing of what was originally an interdisciplinary study[30]. Secondly, although the disciplines must work together, they can be ordered amongst themselves in multiple ways; the various structuralizations will affect not only the techniques and experimental methodologies that are used, but also the *formal object* of the combined study, as can be seen in the different considerations undertaken by biological chemistry and chemical biology.

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[29] Sometimes this is referred to as *transdisciplinarity*. As Strober writes: "When two disciplines become a single discipline, as for example when biology and chemistry form biochemistry, we have a clear instance of transdisciplinarity" (17). Yet, the same author concludes that, "In between the extremes, however, it is not always obvious where we should draw the dividing lines between multidisciplinarity and interdisciplinarity or between interdisciplinarity and transdisciplinarity" (17). Indeed, she ends by citing authors who claim that in practice the three terms are equivalent, and admits "When I began this research, I made finer distinctions than I do now. At this point, I find the lines between multidisciplinarity, interdisciplinarity, and transdisciplinarity often hard to draw. As a result, in this book I use the term *interdisciplinarity* to refer to situations in which more than one discipline is involved, regardless of the degree of their integration" (17). M. H. STROBER, *Interdisciplinary conversations*, Stanford University Press, Stanford, CA 2010. In this, the division we provide offers a useful distinction between *transdisciplinarity* (which could be understood as *interdisciplinarity* with absolute necessity) and *interdisciplinarity* (*interdisciplinarity* with relative necessity). It also seems that Strober overlooks the difference between biochemistry and chemical biology, which relies on the distinction that we admit.

[30] This is the claim, for instance, of Salter and Hearn, who nevertheless note, without giving examples or reasons, "Some interdisciplinary areas will never assume the attributes of a discipline, even with considerable institutional support", HEARN - SALTER, *Outside the lines*, 5. Again, our approach here offers a reason as to why this is the case: such areas are interdisciplinary by a *relative*, and not *absolute*, necessity.

What, then, of the *relative* necessity of interdisciplinarity? A *relative* need for interdisciplinary study does not arise from the material object for two reasons:

a) since it is presumed that the material object is both established (since otherwise interdisciplinarity would be *necessary*) and;
b) shared among the various fields (since if the material object were different between the fields, there would be no basis for interdisciplinarity).

Nor does the necessity arise *directly* from the formal object *quod* or the formal object *quo*; these aspects distinguish disciplines that have a common material object and reveal the unique contribution to be made to the study, but in themselves do not necessitate interdisciplinary work, as this would imply that one or more of the disciplines were insufficient or incompetent to study the material object on its own.

Rather, interdisciplinarity can be *relatively* necessary regarding the *question that is asked*, that is, the inquiry regarding which the investigation is to be undertaken. In the abstract, multiple disciplines can study the same object: the case at hand, perception, is studied by philosophy, psychology, and neuroscience. However, once the problem is made concrete and specific, as Agazzi insists, the limitations of each field appear, and the ways to supplement those weaknesses can be found in other disciplines. Or, to phrase the same idea from a positive light, the question has an import that transcends the formal object *quod* of one field, and thus crosses into the formal object of another. For example, a proposed study of "the neuroscientific foundations of perception as understood by Aquinas" would require an interdisciplinary approach utilizing at least Thomistic philosophy and neuroscience, and likely other fields that can supplement or facilitate the conversation between the two. Such a study is interdisciplinary in the full sense of the word: multiple disciplines that retain their formal objects while studying a common problem. It is the problem at hand that goes beyond the limits of one field. The necessity here is *relative* to the question being asked. Both neuroscience and Thomistic philosophy could, on their own, provide some

examination into the foundations of perception. However, if the question transcends the formal object of one or the other, both sciences must be used to answer the question.

To summarize: interdisciplinary studies can be necessary in one of two ways. *Absolutely*, a study must be interdisciplinary when no single field embraces the specific material object to be examined; as the empirical sciences advance, the objects of study become more specific, not only producing a need for interdisciplinary studies but also giving rise to entirely new disciplines, and hence these studies are ultimately interdisciplinary only as regards their origins. *Relatively,* a study can be interdisciplinary when the specific question to be addressed surpasses the formal object *quod* of one field and infringes on another. These disciplines can be ordered amongst themselves according to the goal of the study.

Philosophy and the empirical sciences

In our study, the problem of *perception* falls under various disciplines: philosophy, experimental psychology, pure phenomenology, and neuroscience. Indeed, a particular difficulty arises when one of the disciplines engaged in interdisciplinary study is philosophy[31]. Martin Heidegger argues that "the breadth of difference between philosophy and the positive sciences . . . cannot at all be estimated quantitatively", and this not only on account of the methodology or formal object *quo*, but also because of the formal object *quod* [32]. Philosophy is unique in that it claims all being as its material object, and that it studies all beings in light of their ultimate causes as the formal object *quod*. Given this broad view, how do the empirical sciences relate to it?

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[31] For an overview of the differences between ancient and modern scientific perspectives and their relation to philosophy, see A. STRUMIA, «Due concezioni di scienza a confronto», *Divus Thomas* 95/1 (1992), 94–125. Indeed, as Strober points out, the idea of philosophy as the overarching branch of knowledge that "would bring all other knowledge together" (13) and serves as an integrative field arose with Aristotle and lasted until the 19th century. In STROBER, *Interdisciplinary conversations*.

[32] M. HEIDEGGER, *Basic Problems of Phenomenology*, Indiana University Press 1982, 20-21.

The French philosopher Jacques Maritain advances one assessment, as he notes that while philosophy and the particular sciences might share the same material object (that is, philosophy studies all being, the particular sciences some portion of it), their formal objects differ. As a result, the empirical sciences have a dependence *de iure* on philosophy, that is, the empirical sciences rely on philosophy for the justification and explanation of their principles, whereas philosophy has no formal dependence on the empirical sciences, which can offer philosophy only material for consideration. As Maritain reports:

> Philosophy is like the culminating point of the hierarchy of knowledge . . . and the philosopher, since he judges of the value, the limits, and the subordinations of the sciences, must evidently know them as they are. . . . Scientific data are like illustrations which normally serve the philosopher in the exemplification and embodiment of his ideas[33].

Thus, for Maritain philosophy has a noetic priority over the empirical sciences: in other words, while the empirical "sciences have . . . no dependence whatever on philosophy with regard to their own intrinsic development"[34], the ultimate explanation of their principles is the sole domain of philosophy. While the empirical sciences study a portion of being, and do so with their own criteria and methods, the formal object of these sciences is limited and particular in comparison with that of philosophy, which is set over the particular sciences and simply uses empirical findings to support its own findings. It could be argued against Maritain's position that such a view is inclined to reduce the empirical sciences to restricted or encumbered sciences; while the empirical sciences have their own proper criteria and methods, there exists the danger that their contributions are of negligible importance to philosophy, and hence philosophy runs the risk of isolating itself from the world of scientific thought. Indeed, Maritain claims that:

> Superior, therefore independent, at least by its own formal constitution: philosophy is, as such, independent with regard to the sciences. It should be understood: there is no

[33] J. MARITAIN, *The Degrees of Knowledge*, Geoffrey Bles: The Centenary Press, London 1934, 63.

[34] MARITAIN, *The Degrees*, 60.

> *formal* dependence of philosophy with regard to the sciences. No scientific result, no scientific theory, in short, no science in the exercise of its own proper means, can ever adequately cut the knot of a philosophical problem, for those problems depend both in their origin and their solution on a light which is not in the reach of science. . . . *To imagine that philosophical doctrines need to be radically transformed to fit in with scientific revolutions is as absurd as to suggest that our souls are vitally affected and altered by a variation in the elements of our dietary*[35].

While Maritain espouses a rather rigid distinction between the empirical sciences and philosophy, a different, even opposing view is proffered by the Belgian-Canadian Charles De Koninck. Although originally in agreement with Maritain's position, the former gradually distanced himself, and presented his final position in his 1961 article "The Unity and Diversity of Natural Science"[36]. Here, he argues that the empirical sciences are simply part of philosophy of nature, and concludes:

> It appears so much more simple to have a neat set of theses called philosophy of nature, and to relegate more concrete investigations to the "scientists." But such a distinction is a purely pragmatic one. . . . To enquire what any object of nature is, and to pursue the enquiry down to the last detail, is surely a pursuit which deserves to be called philosophy[37].

In other words, De Koninck conceives of the empirical sciences as sharing the same material and formal object as philosophy. Thus, the empirical sciences and philosophy would simply be different branches of the one science that investigates all being.

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[35] MARITAIN, *The Degrees*, 63. Emphasis added.

[36] For a brief but thoughtful summary of this progression, see J. M. HUBBARD, «De Koninck on the Philosophy of Nature», *Logos* 17/1 (2014), 140–145. Hubbard's article is followed by a reprint of "The Unity and Diversity".

[37] C. DE KONINCK, «The Unity and Diversity of Natural Science», *Logos* 17/1 (2014), 169-170. As Hubbard notes, the first presentation of de Koninck's evolving view was the 1941 «Les sciences expérimentales sont-elles distinctes de la philosophie de la nature?», published in English translation in DE KONINCK, «Are the Experimental Sciences Distinct from the Philosophy of Nature», in *The Writings of Charles De Koninck Vol. 1*, University of Notre Dame Press, Notre Dame, Indiana 2016, 444-456. The text presents De Koninck's thought in its nascent state, and, while neither as clear nor as definitive as the 1961 article, the reader can appreciate the critical reflection that the Belgian-Canadian thinker allowed to mature during the intervening twenty years between the two publications.

While it is beyond the scope of this work to examine all the arguments for and against these perspectives, and even more to resolve this debate definitively, the consideration of Aquinas's *Commentary on the Posterior Analytics of Aristotle* can shed light regarding how Thomas himself viewed this relation. In *Lectio 17*, Aquinas notes that lower sciences only possess a knowledge *quia*, that is, of the fact, while higher sciences have knowledge *propter quid*, that is, of the *why* behind the fact. This key distinction serves not only for understanding the division between philosophy and the empirical sciences, but also, as will be shown for grasping the relations between the empirical sciences themselves. Likewise, "first philosophy, which considers the common principles, has *being*, which is common to all things, as its subject, and considers the things which are proper to *being*, things which are common to all things, as its proper subject matter"[38]. Hence, following Aristotle, Aquinas argues that since first philosophy starts from the most common principles and causes of all being, it will be the highest science and science in the fullest sense of the word.

This explanation would seem to be more in accord with Maritain's understanding, although in fairness to De Koninck, it must be noted that he is aware of these texts but interprets them quite differently from their literal sense[39]. Indeed, the argument made by Maritain is that the empirical sciences study phenomena and go from what is visible to what is visible, what is observable to what is observable, whereas philosophy "proceeds from the visible to the invisible, to what is *in itself* outside the bounds of all sensory observation, for the principles which are the aim of the philosopher are pure objects of intellection, not of sensible apprehension or imaginative representation"[40]. For this reason, Maritain's position provides a clearer framework for interdisciplinary studies, as De Koninck's view would make it difficult to maintain sufficient separation of the different disciplines.

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[38] T. AQUINAS, *Commentary on Aristotle's Posterior Analytics*, Dumb Ox Books, Notre Dame, Indiana 2007, 79. Italics in original.

[39] For his interpretation, see C. DE KONINCK, «The Unity and Diversity of Natural Science», *Logos* 17/1 (2014), 153-155.

[40] MARITAIN, *The Degrees*, 59.

The distinction between sciences with a knowledge *quia* and those with knowledge *propter quid* is also useful for examining the relation between sciences themselves. Aquinas notes that there are two ways in which a science can be subordinated to another when knowledge *quia* pertains to one science and knowledge *propter quid* the other:

> One way is when the subject of a particular science is a species of the subject of a higher science, as animal is a species of natural body. In this way, the science of animals falls under the science of natural body. Another way is when the subject of the lower sciences is *not* a species of the higher science, but is related to the subject of the higher science as what is material is related to what is formal[41].

Aquinas offers as examples of this latter case the subjection of optics to geometry, of mechanical engineering to stereometry, of music to arithmetic, and of nautical science to astronomy.

Later, Aquinas will note that sometimes sciences are related, though not subordinated, because one gives the *quia* and another the *propter quid*, as is the case in medicine and geometry when studying circular wounds. If these principles are applied to the case at hand, namely, metaphysics – ontology, pure phenomenology, experimental psychology, and neuroscience, a tentative structuring of the sciences amongst themselves can be presented according to general Maritainian and Thomistic principles. Metaphysics – ontology would hold the primary of place and serve as the highest science, responsible for ordering, incorporating, and correcting the other sciences.

Maritain maintains a negative view of pure phenomenology, contending that "it remains radically incapable of furnishing anything but an illusory idealist succedaneum of real", leaving as its only accomplishment "the critical reflection of the mind on itself, and the only 'novelty' is the assigning to it of an impossible task of construction"[42]. Abstaining from this criticism, however, phenomenology would be subject to

[41] AQUINAS, *Posterior Analytics*, 112.
[42] MARITAIN, *The Degrees*, 242, n. 1, and 123, n. 3.

metaphysics – ontology in that the former considers being specifically as it appears to the subject while the latter considers it in light of its ultimate principles. Experimental psychology and neuroscience would be related to phenomenology, since all three sciences consider some aspect of being as perceived. However, the former sciences would not be subjected to the latter, since they are neither species of phenomenology nor do they apply phenomenology's formal principles to a particular matter. Indeed, it can be thought that experimental psychology and phenomenology can offer each other clarifications of phenomena or perceptions that the other science cannot explain. In this way, the distinction of knowledge *quia* and knowledge *propter quid* would depend on the phenomena considered, with experimental psychology sometimes offering phenomenology knowledge *quia* and other times knowledge *propter quid*, and vice versa.

In regards to experimental psychology and neuroscience, it would seem that neuroscience would be subordinated or subalternate to experimental psychology. Neuroscience studies the *quia* of the process of grasping being, that is, it examines *what* occurs when a stimulus enters into contact with a subject in terms of neurotransmission and neurostimulation. However, if the Maritainian hierarchy is accepted, then the *propter quid* of the grasping of being is provided by experimental psychology, as neuroscience expresses *what* happens in the subject on the chemical and cellular level, while experimental psychology considers *why* those chemical and cellular events give rise to perceptions[43].

This, however, only claims that the two sciences are *related*, but not necessarily that one is *subordinated*. It seems unlikely that neuroscience could accurately be called a species of experimental psychology, if only because the distinction is not very clear, but that neuroscience is subordinated to experimental psychology as material to formal

[43] It must be emphasized that this structuring of the sciences affirms a realist Aristotelian-Thomistic worldview. A reductionist view would make the opposite claim, namely, that the molecular and cellular events give the *propter quid* of perception and all mental events, and experimental psychology only studies the *quia*, that is, what happens.

seems applicable. As will be discussed later, experimental psychology considers the mind and thought processes, and it could be said that neuroscience applies that formal consideration to the particular matter at hand, namely, to neurotransmission and neurostimulation. Thus, neuroscience would be a subaltern science to experimental psychology which in turn would be subordinated to metaphysics – ontology.

There is one additional influence that I wish to incorporate: that of the Thomist Cornelio Fabro. In his *Tomismo e Pensiero Moderno*, Fabro strongly asserts the distinction between philosophy and the empirical sciences, noting that while philosophy is concerned with the notions of truth and being in their eternal and unchanging consistency, the empirical sciences posit theories that are always susceptible to further change and development, as Aquinas himself notes[44]. This gives philosophy a noetic priority over the other sciences and is largely in accord with Maritain's thought. Nonetheless, empirical sciences have made legitimate and objective progress, and Fabro strongly asserts that to reject such contributions is to misunderstand the spirit of Thomism[45]. According to Fabro, the philosophy of Aquinas

[44] "Anzitutto—è la prima osservazione—bisogna affermare la netta distinzione fra scienza e filosofia. Esse appartengono a prospettive intenzionali radicalmente diverse: la scienza cerca le leggi del comportamento degli eventi nello spazio e nel tempo, in vista di un'eventuale trasformazione dei processi naturali a servizio della vita dell'uomo; la filosofia indaga il significato ultimo della realtà della verità—dell'essere e della vita—e dell'uomo in essa, nella sua qualità di coscienza riflettente sul significato del suo essere e del suo ultimo fine": C. FABRO, «San Tommaso davanti al pensiero moderno», in A. LIVI – C. FABRO – F. OCARIZ – C. M. J. VANSTEENKISTE, *Le ragioni del tomismo. Dopo il centenario dell'enciclica Aeterni Patris*, Edizioni Ares, Milan 1979, 56. On 58, Fabro highlights ST I, q. 32, a. 1 ad 2. This text is quite similar to that of *Tomismo e Pensiero Moderno* cited below.

[45] C. FABRO, *Tomismo e pensiero moderno*, Libreria Editrice della Pontificia Università Lateranense, Rome 1969: "La scienza invece . . . opera su settori specifici della realtà fisica e spirituale, dove il cammino esige tecniche e procedimenti particolari. La filologia, la storia civile ed ecclesiastica, l'archeologia, la stessa storia della filosofia e della morale, per esemplificare, sono una valida conquista della cultura moderna ed oggi S. Tommaso sarebbe il primo a rallegrarsene e ad accoglierne i validi risultati. Coloro che nei secoli passati hanno impugnato nel nome di S. Tommaso i progressi obbiettivi della scienza, non hanno soltanto nociuto alla civiltà cristiana—oggi lo si può francamente riconoscere—ma hanno frainteso lo spirito del tomismo nel momento più cruciale. . . . Gli errori perciò che certi Scolastici e tomisti possono aver commessi—in passato—nel campo scientifico, non possono intaccare la consistenza della *determinazione fondamentale* del concetto di verità tramandato dal realismo classico e formulato da S. Tommaso. Del resto sopratutto nel nostro secolo, quando la scienza

is meant to engage the modern world in discussion, using certain "essential" elements and doctrines that can be applied to a modern context[46].

Thus, unlike De Koninck, Fabro maintains that philosophy and the empirical sciences are really distinct, because their formal objects are really distinct, and unlike Maritain, Fabro is much more positive about the possible contributions of the empirical sciences. The priority and authoritative interpretation belong to philosophy, but the particular sciences can do more than simply provide philosophy with examples. There can be a true dialogue, a "real common discourse", in Agazzi's words, not an authoritative pontificating as in the Maritainian vision, nor a monologue as in De Koninck's. Empirical sciences can offer a correction to a philosophical vision that is not a true reflection of the world. To a vision that is substantially correct, they can offer an opportunity to further refine and specify the perennial truths discovered therein. This is Fabro's understanding of the relation between the two sciences, a relation parallel to Aquinas' understanding of the relation between faith and reason[47]. The truth is one;

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si è nettamente staccata dalla filosofia, la cultura cattolica non solo non ha mostrato alcuna pregiudiziale ma ha collaborato e collabora direttamente a fianco dei massimi istituti di ricerca" (419-420). By "filosofia", Fabro here has in mind modern philosophy. It could be argued that philosophy should not change in accord with the developments of the empirical sciences; indeed, such a change should not be done lightly. Fabro makes an interesting point, noting "The dissonance began both from inside various scholastic systems, and from outside, that is, from modern philosophy and from objections—which were often misunderstandings— of modern science: it is enough to point out here the problem of metaphysics and the most recent advances in microphysics, embryology, and genetics. It is not a sign or indication of good sense to presume to find in Thomism and in Thomas's writings themselves a ready-made solution or prescription for all speculative or scientific problems that his own time could never have known and that have appeared only on the horizon of modern culture" (C. FABRO, *Introduction to Saint Thomas*, IVE Press, Chillum 2022, 266). Consider, for instance, ST I, q. 119, a. 2, that semen comes from excess food, or *Commentary on the Metaphysics*, bk. 7, lect. 6, in favor of spontaneous generation.

[46] For more regarding Fabro's vision of "essential Thomism" and its relevance to modern problems, see E. FONTANA, *Attualità del tomismo di Cornelio Fabro*, Pontificia Studiorum Universitas a Sancto Thoma Aquinate in Urbe, Rome 2007, or, for a synopsis in English, FONTANA, *Introduction to Cornelio Fabro*. For the use of data from the empirical sciences that challenges a philosophical viewpoint, see the criticisms of Kant, Berkeley, and Locke offered by Gestalt psychological research in C. FABRO, *La Fenomenologia della Percezione*, ED.IVI, Segni, 2006.

[47] Regarding this, BENEDICT XVI describes well the relation between faith and reason in Aquinas: "And this was the great achievement of Thomas who, at that time of clashes between

philosophy is concerned with truth and, inasmuch as the empirical sciences touch on that truth, they can complement philosophy. Indeed, if philosophy were to lose touch with truth, it is possible that the empirical sciences could, in the measure that they enter into contact with truth, offer a corrective.

The result is truly a dialogue, a conversation in which philosophy takes the lead, but works with the results of the empirical sciences in one of three ways:

1) accepting those results by offering an interpretation according to its own framework;

2) rejecting the results either because the experimentation is flawed (and therefore the results are not true results) or because the science has offered an interpretation that goes beyond its scope;

3) philosophy can modify its position in accord with the scientific findings. This third option is by far the least common in practice, but it should be considered if there is truly to be a common discourse.

Philosophy has the priority in *via iudicii* over the particular sciences and provides the original ontological *Weltanschauung*. It is this worldview that helps shape the proceedings and conclusions of the other sciences, and the other sciences in turn could help to confirm or modify the ontological *Weltanschauung* as they, operating in their own realms with relative freedom, reach their conclusions. It is this view which could be considered Maritainian in structure but Fabrian in vision, that we wish to adopt for

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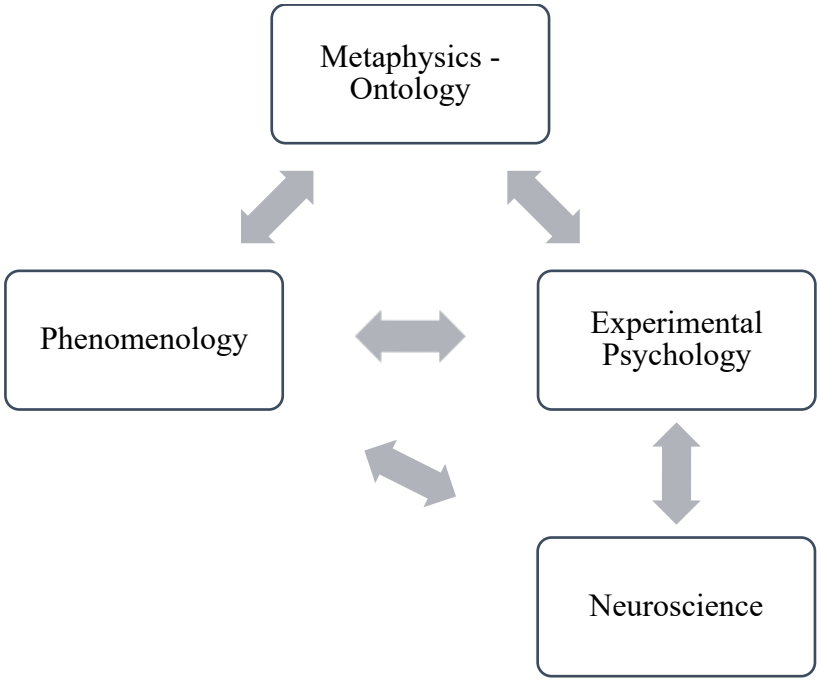
two cultures that time when it seemed that faith would have to give in to reason showed that they go hand in hand, that insofar as reason appeared incompatible with faith it was not reason, and so what appeared to be faith was not faith, since it was in opposition to true rationality". BENEDICT XVI, «General Audience of 2 June 2010», 2010, in http://www.vatican.va/content/benedict-xvi/en/audiences/2010/documents/hf_ben-xvi_aud_20100602.html [4-9-2020].

the remainder of this study. Our position regarding the structuring of the sciences could be summarized as follows:



Foundations for an interdisciplinary study of perception

After these general considerations regarding complex problems and the coordination of various disciplines, we now turn to the questions of perception. As Agazzi notes, the focus of an interdisciplinary study must be concrete and therefore specific. Problems related to perception provide the opportunity for an interdisciplinary study, and such work would do well to count on the insights of pure phenomenology, experimental psychology, neuroscience, and metaphysics. Here, we will simply examine each of the aforementioned fields in light of their theoretical context, their criteria for facts, and key concepts, in order to lay out a foundation for an interdisciplinary study of perception in the broad sense. The particular question being studied could eliminate the need of one or more fields, or even necessitate the considerations of additional fields.

While there is much disagreement and discussion regarding the limitations and methods of these disciplines even within the disciplines themselves, here we are simply attempting to formulate one possible foundation for an interdisciplinary study, a foundation that makes no claims to be either exclusive or definitive[48].

Pure phenomenology

Although its beginnings are fairly recent, there is a wide range of interpretations and schools of phenomenology. In his introduction to *Ideas I*, Edmund Husserl offers preliminary insights into the theoretical context of phenomenology when he notes that it is "a science of the phenomena", that is, the study of "'consciousness', with all sorts of mental processes, acts and act-correlates"[49]. In this sense, experimental psychology could also be called phenomenological (a topic examined in the next section), as it shares the same material object. However, Husserl strongly insists on two major differences: first, whereas psychology is a science of *facts* or *matters of fact*, that which is in reality, phenomenology is a science of *essences* or *eidos*, meaning that which something is invariably and apart from reality, what the thing is in itself. Phenomenology strives for the cognition of those essences as pure and without consideration for "*matters of fact whatever*"[50]. Second, whereas psychology is a

[48] Indeed, a claim to such exclusivity would violate the very nature of interdisciplinary studies, as Graff notes: "In the making of interdisciplinarity, disciplinary elements are interactive, not additive. Similarly, interdisciplinarity derives from the selection of appropriate and relevant ideas, approaches, theories, concepts, methods, and comparisons from different - fields or disciplines. . . . *There is no single path to interdisciplinarity, no single model, no single standard for successful development*" (emphasis added) in H. J. GRAFF, *Undisciplining Knowledge*, JHU Press, Baltimore, MD 2015, 5. Indeed, Graff argues that those who study interdisciplinarity disagree about what the term means.

[49] E. HUSSERL, *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy: First Book General Introduction to a Pure Phenomenology*, Martinus Nijhoff Publishers, The Hague 1983, XVII and XIX.

[50] HUSSERL, *Ideas 1*, XX. Emphasis in original. For the various meaning of essence and *eidos* in Husserl, see D. MORAN – J. COHEN, *The Husserl Dictionary*, Continuum, New York 2012, s.v. "Essence (*Wesen*, *Essenz*, *Eidos*)", 111: "Essence does not relate to what factually exists but defines precisely what is possible. The essence of something characterizes what belongs to it invariantly, its 'what' (*Was*) or 'whatness' (*Washeit*) or what it is in terms of its universal and necessary predicates".

science of *realities*, that is, the examination of real subjects with real experiences, phenomenology is an *irreal* science in that its task is to "'purify' psychological phenomena from what confers on them reality and, with that, their place in the real 'world'"[51]. Consequently, "the psychological phenomenon in psychological apperception and objectification is not a truly absolute datum. The truly absolute datum is the *pure phenomenon*, that which is reduced"[52]. In other words, this phenomenological reduction means turning back or suspending the variant elements of the psychological phenomena to reach the unchanging or absolute reality, the pure phenomenon. This reductive method by which the pure phenomenon is obtained is so intimately linked with phenomenology that Martin Heidegger proclaims "*the expression 'phenomenology'* is the name for the *method* of *scientific philosophy in general*"[53]; scientific philosophy, he notes, concerns not just the construction of a *worldview*, but rather the understanding of being or of actuality prior to studying particular beings, since being is the "*proper and sole theme of philosophy*"[54]. In this, there is an opening to a relation with metaphysics, as will be discussed later.

Among the phenomenologists who dealt extensively with perception, Maurice Merleau-Ponty holds a place of honor for his *Phenomenology of Perception* and other works on the matter[55]. In the preface to said work, Merleau-Ponty maintains that phenomenology "must begin by reawakening the basic experience of the world", returning to that experience within the subjective realm of consciousness "through

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[51] HUSSERL, *Ideas 1*, XX. As will be seen, whether Merleau-Ponty shares this view is debated.

[52] E. HUSSERL, *The Idea of Phenomenology*, Martinus Nijhoff Publishers, The Hague 1970, 5. Emphasis in original.

[53] HEIDEGGER, *Basic Problems*, 3. Emphasis in original.

[54] HEIDEGGER, *Basic Problems*, 11. Emphasis in original.

[55] It is important to bear in mind that it was difficult to access the texts of Husserl and Heidegger at the time when Merleau-Ponty wrote. See D. A. LANDES, *The Merleau-Ponty Dictionary*, Bloomsbury Publishing, New York 2013, 150, s. v. *Phenomenology*, for a brief but thoughtful look at Merleau-Ponty's vision of phenomenology and a comparison with that of Husserl. There is disagreement as to whether Merleau-Ponty's reduction is the same as Husserl's. See also P. DUPOND, *Le vocabulaire de Merleau-Ponty*, Ellipses, Paris 2001, 49-50, s. v. *Perception*, and 50-51, s. v. *Phénoménologie.*

which from the outset a world forms itself round me and begins to exist for me. To return to things themselves to return to that world which precedes knowledge"[56]. Returning to things themselves is a Husserlian notion, but the notion of the world is a contribution of Merleau-Ponty and is important for two reasons. First, the world implies a context, without which things cannot be understood: "The things of the world are not simply neutral *objects* which stand before us for our contemplation"[57]. Rather, objects have meaning; they attract or repel, anger or sadden. Hence, he notes that perception "includes the whole experience which gives the thing itself"[58]. Secondly, whereas some claim that Husserl's phenomenology ends with the reduction, Merleau-Ponty's phenomenology implies a return to the world: "If we reflect on our objects of thought and science, they ultimately send us back to the perceived world, which is the terrain of their final application"[59]. For Merleau-Ponty, phenomenology is thus concerned with *lived* experience and perception provides access to these things in the world[60]. However, some phenomenologists maintain that not even this experience *qua* subjective experience in and of the world is not the end of phenomenology. Rather, as Shaun Gallagher and Dan Zahavi write:

> Phenomenology has as its goal, not a description of idiosyncratic experience – 'here and now, this is just what I experience' – rather, it attempts to capture the invariant structures of experience. . . . Phenomenology is not interested in understanding the world according to Gallagher, or the world according to Zahavi, or the world according

[56] M. MERLEAU-PONTY, *Phenomenology of Perception*, Routledge and Kagan Paul Ltd, London 1966, viii-ix. See D. R. CERBONE, «Perception», *Merleau-Ponty: Key Concepts*, edd. R. DIPROSE - J. REYNOLDS, Routledge, New York 2014, 122. The whole chapter provides an excellent overview of Merleau-Ponty's understanding of perception.

[57] M. MERLEAU-PONTY, *The World of Perception*, Routledge, New York 2004, 63.

[58] M. MERLEAU-PONTY, «The Primacy of Perception and Its Philosophical Consequences», in *The Primacy of Perception*, Northwestern University Press, Evanston, Illinois 1964, 34.

[59] MERLEAU-PONTY, *The Primacy*, 35.

[60] See, for instance, MERLEAU-PONTY, *The Primacy*, 34: "We find in perception a mode of access to the object which is rediscovered at every level, and in speaking of the perception of the other I insisted that the word 'perception' includes the whole experience which gives the thing itself".

> to you; it's interested in understanding how it is possible for anyone to experience a world[61].

As the same authors comment later, phenomenology seeks to uncover the possibility and structures that underlie the phenomena because, as they note, the subject is a "subject for the world", meaning "objects are constituted, that is, experienced and disclosed in the ways they are, thanks to the way consciousness is structured"[62]. The structures that allow for that appearing in the subject can also be studied by examining the way objects appear. In this sense, there is a possibility for inter-subject confirmation of these processes. Again, these are not examined as biological or quantitative processes, but rather as the processes by which the subject comes to experience what it does.

On this basis, even given the variety of understandings regarding the nature of phenomenology, a framework for considering pure phenomenology within the context of an interdisciplinary study can be established. Pure phenomenology is *subjective*, in that it concerns the reduction of objects of experience, considered in their totality, that is, context, import, history, and the like, to their unchanging essence which, as both Husserl and Merleau-Ponty note, can only be considered *qualitatively* and *inexactly*[63]. Since lived experience is personal, the objects of perception in their totality, the internal processes of reduction and application to reality and even the essence itself, are to be considered *subjective*. Hence, it could be said that there is no real objective criterion for truth, since the essence remains a subjective reality. Indeed, phenomenological studies must rely on first-person data: self-reports and examinations of the subject's own processes. Thus, it could be said that the method of phenomenology is *inductive*, as it begins from experience and progresses to generalizations. Certainly, it could not

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[61] S. GALLAGHER – D. ZAHAVI, *The Phenomenological Mind*, Routledge, New York 2013, 28.

[62] GALLAGHER - ZAHAVI, *The Phenomenological Mind*, 26.

[63] See MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 67, where he quotes Husserl to this effect.

be otherwise, since Husserl himself proclaimed phenomenology to be a "presuppositionless philosophy"[64].

The danger is that phenomenology could be reduced to a solitary and solipsistic science. Yet, Husserl maintained that "all subjectivity is intersubjectivity", implying that the individual subjects with their reductions are always intertwined with others[65]. On one hand, this could be understood as affirming that from admittedly subjective and qualified experiences, phenomenology attempts to grasp the essence of the things in the world, or as Gallagher and Zahavi say, grasp the structure of consciousness. There exists the possibility that these results can be "verified" by examining the experiences of many individuals, but this could be considered not a shift from first-person to third-person, but rather from first-person singular to first-person plural, since phenomenology is always subjective.

On the other hand, more recent authors such as Duane H. Davis and Patricia Hill Collins have argued that the work of phenomenology is to see and unmask the factors that make an absolute reduction impossible, factors such as race, gender, and class, and admit and consider their influence. In this, they are in continuity with Merleau-Ponty's admission that "[t]he most important lesson which the reduction teaches us is the impossibility of a complete reduction"[66]. As Davis writes: "In order to achieve a critical phenomenology, phenomenology must be seen as a philosophy of difference rather than identity"[67]. In other words, for some the goal of phenomenology

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[64] What Husserl means, precisely, by "presuppositionless" is debated, but that it would render phenomenology an inductive, rather than deductive, science seems to be a benign conclusion. For a study regarding this phrase and its various interpretations, see T. REED-DOWNING, «Husserl's Presuppositionless Philosophy», *Research in Phenomenology* 20 (1990), in https://www.jstor.org/stable/24654457 [7-9-2020], 136–151.

[65] For an examination of intersubjectivity in Husserl, including texts and implications, see A. SCHNELL, «Intersubjectivity in Husserl's Work», *META* 1/2 (2010), 9–32.

[66] MERLEAU-PONTY, *Phenomenology of Perception*, xiv.

[67] *50 Concepts for a Critical Phenomenology*, edd. G. WEISS - A. V. MURPHY - G. SALAMON, Northwestern University Press, Evanston, Illinois 2019, 8. This chapter, entitled «The Phenomenological Method», by Davis, offers a very recent view of the direction and limitations of the topic at hand.

is not to arrive at essences that are the same for everyone, but rather examine and admit the factors that make such a conclusion impossible. Nonetheless, in either case, phenomenology allows for an examination of the subject's experience of the objects that appear to it and by what contexts or factors they appear in that way.

Experimental psychology

Broadly considered, psychology is the study of the mind and behaviors, and experimental psychology is this study utilizing different tests or methods of examination in order to test the validity of a hypothesis[68]. The term *experimental* brings two characteristics to psychology: first, there is certainly a *deductive* element in this science in that theories are tested by means of experiments, which produce specific conclusions. At the same time, however, there is also an *inductive* aspect in that it is from initial observations that generalizations and theories are formed, and it is these theories that then determine which experiments will be run. Second, "today the term experimental psychology does not . . . cover all of the areas in psychology that employ the experimental method": the application of the term *experimental*

> is currently limited to cover roughly the topics of perception, attention, action, learning, memory, and cognition. Although by definition empirical in nature [that is, relying on measurable data and not theorical considerations], research on experimental psychology is focused on tests of theories, so that theoretical and experimental objectives and methods are necessarily intertwined[69].

The experiments undertaken and, perhaps even more significantly, the interpretation of the results, are the consequence of the adopted theoretical position of the researcher. In the narrow sense, this position is bound to psychological theory but,

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[68] E.g. R. M. SPIELMAN, *Psychology*, OpenStax/Rice University, Houston 2014: "Psychology refers to the scientific study of the mind. *Since science studies only observable phenomena and the mind is not directly observable, we expand this definition to the scientific study of mind and behavior*". Emphasis mine. I will return to this point later.

[69] *Handbook of Psychology, Experimental Psychology*, edd. A. F. HEALY - R. W. PROCTER, John Wiley & Sons, Hoboken 2013, xiii.

as will be discussed, in the broader meaning even the ontological worldview of the researcher can influence both experimentation and interpretation.

With the focus on mind and consciousness, experimental psychology could be called phenomenological psychology, just as pure phenomenology is sometimes labeled descriptive psychology[70]. Indeed, some have even used the term "experimental phenomenology" to refer to the work of Carl Stumpf, Albert Michotte, Max Wertheimer, and even contemporary psychologists[71]. For the purposes of this thesis, the three terms, experimental psychology, experimental phenomenology, and phenomenological psychology, are interchangeable.

Earlier mention was made of Husserl's argument regarding the division between pure phenomenology and psychology. Whereas Husserl's pure phenomenology is an *irreal* science that studies essences, psychology is a science of realities that examines facts. What is meant by this is that although psychology might study the same phenomena and experiences as phenomenology, it does so by means of experiments that allow for measurements and the manipulation of variables. Nonetheless, this does not imply an incompatibility but rather a synchrony between the two fields, as both Husserl and Merleau-Ponty recognize:

> 'As a matter of principle,' he [Husserl] said, psychology in its whole development is parallel to phenomenology. Of course, one might just as well say that phenomenology is always parallel to psychology and that every significant proposition of empirical psychology anticipates a phenomenological truth[72].

After this, Merleau-Ponty adds a pivotal claim: "This means that for every assertion of experimental psychology a corresponding eidetic assertation can be found"[73]. Indeed, Merleau-Ponty goes further than Husserl when he argues that the two

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[70] MERLEAU-PONTY, *Phenomenology*, viii.

[71] This is, for instance, the opinion of Liliana Albertazzi. For an overview of the division, see her chapter «Experimental Phenomenology: An Introduction», in L. ALBERTAZZI, *Handbook of Experimental Phenomenology*, John Wiley & Sons, Hoboken 2013, 1-36.

[72] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 72-73.

[73] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 72-73.

modes of knowledge, inductive and essential, are fundamentally homogenous, ultimately indiscernible, and differ only in degree[74].

To determine the veracity of Merleau-Ponty's claim is beyond the scope of this thesis, but it must be borne in mind that *mental operations are not susceptible to direct observation in the sense of empirical and quantitative measurements*. Empirical psychology conducts experiments, but the results of these are always obtained by a double derivation, and this in two senses: on one hand, the experiments are done so as to observe physical behaviors, which, in turn, are thought to derive from the internal processes of perception and thought. Behaviors are thought to be the "incarnation", as it were, or the "manifestations" of those processes, which is a notable assumption, given the lack of understanding of how the mind works and the influence of the psychological theory that provides the framework for the hypothesis being tested.

On the other hand, often, though not always, experimental results are obtained by means of self-reporting based on what the subject experiences or feels. Generally speaking, experimental psychology manipulates the exterior "object" (which could be a physical object, an environment, or even multiple elements that are designed to elicit a response in the subject) so as to see the effect on the subject[75]. In other words, experimental psychology examines the subject from outside the subject (by manipulating the "object") by means of subjective or qualitative responses. This requires that the subjects accurately report the products of mental or neural processes, and not those processes themselves. Ideally, the two would align perfectly: the self-report would confirm the experience that manifests the process, all of which are

[74] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 72.

[75] Indeed, this is the importance of the experimental method, as Healy and Proctor note: "The experimental method is defined by the manipulation of independent variables and the measurement of dependent variables. Extraneous variables are either controlled or allowed to vary randomly. In particular, care is taken to remove any variables that are confounded with the independent variables. Because of the control exerted, this method permits the investigator to isolate causal relations. Any change in the dependent variables can be viewed as caused by the manipulation of the independent variables". *Handbook of Psychology*, edd. A. F. HEALY - R. W. PROCTOR, xiii.

proposed according to the theoretical framework of the researcher. However, this is not always the case, as, for example, studies of blindsight have shown, wherein blind persons are asked to point to a light that is shown somewhere in their visual field. While the patients usually protest that they are blind, the experimenters then encourage them to "guess" where the light might have been, but remarkably the vast majority of the "guesses" are accurate, typically to five and ten degrees[76]. Clearly there is some processing of information taking place as revealed by the behavior, but the mechanism is inaccessible to self-reporting.

Neuroscience

Neuroscience, the study of the nervous system and its interactions with the body, traces its foundations back to Aristotle and Galen, but the pivotal discoveries that permitted its development as a science in its own right took place at the end of the 19th and beginning of the 20th centuries with figures such as Paul Broca (1824-1880), Charles Sherrington (1857-1952), and many others[77]. With increasing knowledge of the structure of neurons, neural networks, and neurotransmitters, neuroscience has sought to understand the underlying biochemical and psychophysiological processes of mental activity, including those processes related to perception. In this, it has opened a new world of research and has cast light onto the deepest and most mysterious realms of human life. Indeed, the work of neuroscientists has greatly advanced the understanding of almost every sphere of life, and has opened many new avenues for medical treatment of illnesses that were previously considered hopeless.

Neuroscience relies on experimentation and empirical data; hence, it is *objective* and *quantitative*. As with experimental psychology, neuroscience has both *deductive* and *inductive* elements. Once again, it must be recalled that *mental*

[76] See F. CRICK, *The Astonishing Hypothesis*, Charles Scribner's Sons, New York 1994, 171-172.

[77] For an excellent historical overview, see the first chapter of M. R. BENNETT – P. M. S. HACKER, *Philosophical Foundations of Neuroscience*, Blackwell Publishing, Ltd. Malden 2003, 9-107.

operations are not susceptible to direct observation, but what can be observed and measured are indications of neural activity. To this end, neuroscience makes particular use of functional neuroimaging with tools such as single-photon emission computed tomography (CT - measuring cerebral blood flow), magnetoencephalography (MEG - measuring small intra-cellular electrical currents which generate magnetic currents), positron emission topography (PET - measuring glucose metabolism), and functional magnetic resonance imaging (fMRI - using several different techniques to determine oxygen saturation and blood flow). Each technique comes with its advantages and limitations[78].

Two remarks are in order regarding these means of observation in general. First, these experimental techniques must be used carefully and, as per the scientific method, results must be confirmed and correctly interpreted. While the interpretation relies heavily on the theoretical presuppositions and will be discussed later, it should first be noted that the confirmation of results is a great challenge facing the scientific community, and these measurement techniques in particular are prone to error. For instance, Craig M. Bennett and his team reported fMRI data showing brain activity in a mature Atlantic salmon upon showing it a series of photographs of humans interacting; the caveat, however, is that the salmon was dead during the test, and the fMRI data had not been controlled for false positives[79]. The motive for performing the experiment and publishing the paper was precisely to emphasize the need to have a control for these factors, but in another publication the authors note soberly: "In a recent survey of all articles published in six major neuroimaging journals during the year 2008, we found that between 25% and 30% of fMRI articles in each journal used uncorrected thresholds in their analysis". Likewise, "In a survey of posters presented

[78] For this section, see G. E. GETZ, *Applied Biological Psychology*, Springer, New York 2014, 16-42. For a clear synthesis in chart form of the different techniques compared according to spatial and temporal resolutions, see P. S. CHURCHLAND, *Brain-Wise*, MIT Press, Cambridge, Massachusetts 2002, 19.

[79] C. BENNETT – M. MILLER – G. WOLFORD, «Neural correlates of interspecies perspective taking in the post-mortem Atlantic Salmon: an argument for multiple comparisons correction» in *NeuroImage* 47 (2009), in 10.1016/s1053-8119(09)71202-9 [24-6-2020], S125.

at a recent neuroscience conference, we found that 80% of the presentations used uncorrected thresholds". The authors make the devastating conclusion: "Based on these data, it is quite likely that results comprised wholly of false positives are present in the current literature. Despite this fact, new studies reporting uncorrected statistics are published every month"[80]. Although it is possible that the situation has improved in the last decade, nonetheless retractions for lack of verification, even among respected publications, are common[81]. This is not to dismiss the claims of neuroscientific research, but a reminder that such studies need to meet rigorous standards and to be subject to verification; while such standards and verification are part of the scientific method, they are often neglected.

Second, since mental operations are not directly observable, to claim that any particular neural activity is the cause of a thought or an emotion seems precipitous at best. On one hand, this stems from the nature of the experiments themselves. In *Out of Our Heads*, Alva Noë remarks that the low resolution of such images ("to cubic regions of between 2 and 5 mm—that is, to regions in which there are hundreds of thousands of cells") and the lag time between neural events and detection (the events take place or "unfold at the scale of thousandths of a second" but need much more time, "large portions of a minute", to be detected and processed) produces the need for normalized (averaged) data. As a result, Noë concludes firmly that "there is no sense in which PET or fMRI pictures deliver direct information about consciousness. They do not even deliver direct representations of neural activity"[82].

Noë's somber assessment serves as a reminder that neuroscience often exhibits the tendency to presume too much regarding its capacity for analysis. This, in turn, is

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[80] C. M. BENNETT – G. L. WOLFORD – M. B. MILLER, «The principled control of false positives in neuroimaging» in *Social, Cognitive, and Affective Neuroscience* 4/4 (2009), 417–422 (citations from 418).

[81] E.g., on June 9th, 2020, both *The Lancet* and *The New England Journal of Medicine* announced retractions of coronavirus-related papers.

[82] A. NOË, *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness*, Hill and Wang, New York 2009, 23.

because many neuroscientists have adopted a reductionist view of the mind, knowledge, and consciousness, wherein all cognitive functions can be reduced to neural activity. This reductive theoretical framework would make a sincere interdisciplinary effort impossible, because it would presume that no explanation is required or even possible from other fields.

As Bennett and Hacker note, the two major theoretical or philosophical frameworks that underlie modern neuroscience are dualism and materialism[83]. The first two generations of neuroscientists tended to be dualists, admitting that mind was irreducible to the brain. This stance is the intellectual legacy of Descartes' division of the world into *res cogitans* and *res extensa*. Later generations of neuroscientists up to the present tend toward materialism, holding that matter is the only principle that exists. This tendency reflects the increase of knowledge of how the brain works and the rejection of an unseen *res cogitans* that cannot be verified by experimentation[84].

Within both frameworks there are a wide range of views: dualism is far less common, with Sir John Eccles as a prominent supporter[85]. The position is not without its difficulties, but it should be noted that Eccles interprets scientific data in light of this vision of the human person and, indeed, of the structure of the universe[86]. Materialist views range from those who maintain that all cognitive functions associated with the mind can be reduced to the brain and neurons (reductionism), and others who argue the situation is more complex, involving the emergence of higher-level functions or even the influence of the environment. The reductionist vision of neuroscience is expressed lucidly by Francis Crick: "The scientific belief is that our minds—the behavior of our

[83] See BENNETT - HACKER, *Philosophical Foundations*, 111-114.

[84] See M. BENNETT – D. DENNETT – P. HACKER – J. SEARLE, *Neuroscience and Philosophy: Brain, Mind, and Language*, Columbia University Press, New York 2007, 15.

[85] CRICK, *The Astonishing Hypothesis*, 6.

[86] Regarding the position of Eccles, see BENNETT – HACKER, *Philosophical Foundations*, 49-57.

brains—can be explained by the interactions of nerve cells (and other cells) and the molecules associated with them"[87].

Special note should be made of what could broadly be termed *embodied cognitive science*. One origin of the movement was the 1991 publication of *The Embodied Mind: Cognitive Science and Human Experience*, the general hypothesis of the movement could be summarized in a statement by Noë:

> To understand consciousness in humans and animals, we must look not inward, into the recesses of our insides; rather, we need to look to the ways in which each of us, as a whole animal, carries on the processes of living in and with and in response to the world around us. The subject of experience is not a bit of your body. You are not your brain. The brain, rather, is part of what you are[88].

For embodied cognitive scientists, the body provides a privileged place of encounter with the world, and hence the body, experience, usefulness of objects, and the like all play a role in consciousness and thought.

Can such a school be adequately classified as either dualist or materialist, or is it a break in the impasse, a *tertium quid*? Two foundations of Francisco Varela's vision as presented in *The Embodied Mind* seem to indicate that embodied cognition tends to *monism*, and hence is more inclined to materialism. These two foundations are Merleau-Ponty and Buddhism.

The first foundation is that of Merleau-Ponty: the authors of *The Embodied Mind* admit that they look to him for inspiration. Indeed, they write: "We believe that it is time for a radically new approach to the implementation of Merleau-Ponty's vision. What we are offering in this book is thus a new lineage of descent from the fundamental intuition of double embodiment first articulated by Merleau-Ponty"[89].

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[87] CRICK, *The Astonishing Hypothesis*, 7.
[88] NOË, *Out of Our Heads*, 7.
[89] F. J. VARELA – E. THOMPSON – E. ROSCH, *Embodied Mind, Revised Edition*, MIT Press, Cambridge 2016[2], lxiii.

The problem is, it seems, Merleau-Ponty did not find his own theory of embodiment sufficient. In his last work, the unfinished *The Visible and the Invisible*, the French phenomenologist admits that he unknowingly accepted the Cartesian division between thought and nature. Although the text is difficult, given the unpolished state, it is clear that Merleau-Ponty intended to study phenomenological ontology, and concluded that both the subjective and objective orders are simply manifestations of a single, deeper realm called "wild Being"[90]. After analyzing the text, Remy C. Kwant comments that:

> The same reasons which could lead us to think that Merleau-Ponty's new philosophy is a kind of materialism could just as easily make us think that it is a spiritualism. For the visible and the invisible belong together as two sides of one and the same reality…. Nevertheless, it would be wrong to speak either of materialism or of spiritualism, since it is the essential thesis of Merleau-Ponty that there is just one order of reality[91].

Nonetheless, this difficulty coincides with the conclusions of the second foundation, namely, those of Buddhism. Varela and his team insist that the Madhyamaka tradition following the work of Nagarjuna, the so-called "middle way," is the ultimate resolution of reality[92]. In his work *Mūlamadhyamakakārikā* [*Fundamental Verses on the Middle Way*], after argumentation, Nagarjuna concludes (in the words of Varela): "Nothing can be found that has an ultimate or independent existence. Or to use Buddhist language, everything is 'empty' of an independent existence, for it is codependently originated"[93]. The consequence is that "now we discover that we have no mind; after all, a mind must be something that is separate from and knows the world. We also don't have a world. There is neither an objective

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[90] This is, in summary terms, the translator's understanding and clearly the position of Kwant (who uses the term "savage Being"). For a brief but important discussion of the difficulties of the text, see the editorial note in M. MERLEAU-PONTY, *The Visible and the Invisible*, Northwestern University Press, Princeton, New Jersey 1968.

[91] R. C. KWANT, *From Phenomenology to Metaphysics: An Inquiry into the Last Period of Merleau-Ponty's Philosophical Life*, Duquesne University Press, Pittsburgh, PA 1966, 44-45.

[92] For an English translation of this important text, see M. SIDERITS, *Nagarjuna's Middle Way*, Wisdom Publications, Somerville, MA 2013.

[93] VARELA - THOMPSON - ROSCH, *Embodied Mind*, 224.

nor subjective pole". Towards the end of the section, the authors conclude by citing approvingly Tibetan Buddhist commentators who note:

> Through ascertaining the reason—that all phenomena are dependent arisings—the extreme of annihilation (nihilism) is avoided, and realization of dependent-arising of causes and effects is gained. Through ascertaining the thesis—that all phenomena do not inherently exist—the extreme of permanence (absolutism) is avoided, and realization of the emptiness of all phenomena is gained[94].

Further study is required to understand specifically the implications of the insights of Merleau-Ponty and Buddhism on embodied cognitive science, but there is reason to believe that they imbue this approach to neuroscience with a monistic view of reality[95].

Metaphysics - ontology

Earlier mention was made of Heidegger's claim that understanding being *qua* being is prior to understanding particular beings, even if access to being itself is initially by means of consideration of a particular being. This priority of metaphysics is thus not to be understood in a chronological sense, because knowledge of the individual precedes knowledge of the universal. In this, Heidegger is in agreement with Aristotle who argues that humans naturally progress from what is more concrete and singular to what is more abstract and universal[96]. Rather, it seems Heidegger is arguing that metaphysics or ontology has a certain noetic priority over what could be called epistemology or gnoseology in that the metaphysical preconceptions affect how knowledge of objects is obtained and interpreted.

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[94] VARELA - THOMPSON - ROSCH, *Embodied Mind*, 225.

[95] The criticism of the role of Buddhism in cognitive science is not new, but this specific examination is lacking: for a general critique, see E. THOMPSON, *Why I Am Not a Buddhist*, Yale University Press, New Haven, Connecticut 2020. Thompson was a co-author of *Embodied Mind*.

[96] See ARISTOTLE, *Metaphysics Vol. 1*, Vol. 17 of Aristotle, Loeb Classical Library, 271, Harvard University Press, Cambridge 1933, Bk. 1.

Indeed, this appears to be implicit in the statements that Heidegger makes as he strongly emphasizes that the methodology of metaphysics is entirely unlike that of the empirical sciences:

> The method of ontology, that is, of philosophy in general, is distinguished by the fact that ontology has nothing in common with any method of any of the other sciences, all of which as positive sciences deal with beings. On the other hand, it is precisely the analysis of the truth-character of being which shows that *being also is, as it were, based in a being, namely, in the Dasein. Being is given only if the understanding of being, hence Dasein, exists*. . . In ontology, being is supposed to be grasped and comprehended by way of the phenomenological method[97].

At the end of this dense text, taken from his 1927 summer lecture course at the University of Marburg, Heidegger notes that in this search for being, the task of phenomenology is simply a continuation of the task of Western philosophy since its beginnings[98]. For Heidegger, ontology relies on the use of inductive reasoning, from particulars to universals, and this is because it follows the phenomenological method; although its conclusions are not subject to verification by experimentation, this allows metaphysics access to realities that are unavailable to the empirical sciences.

While pre-Heideggerian and pre-Husserlian philosophers would not have used the phenomenological method *qua* phenomenological method, Aquinas maintains essentially the same line of thought. Metaphysics is the study of being *qua* being, and the metaphysician gradually progresses from knowledge of particular beings to knowledge of being *qua* being. The process and mechanisms by which this occurs are debated[99] but it could be said that, for Aquinas as well as for Heidegger, metaphysics is an *inductive* science (in the loose sense of the term), *objective* (in that it considers

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[97] HEIDEGGER, *Basic Problems*, 19-21. Emphasis added.

[98] However, it was only in 1975 that Heidegger permitted the work to be published. The text itself, as with most of Heidegger's works, is based on Heidegger's own lectures notes and comments, as well as a transcription taken during the course itself by student Simon Moser. See HEIDEGGER, *Basic Problems*, xi.

[99] In this regard, see the excellent articles «Aquinas on *separatio* and Our Discovery of Being as Being» by John F. Wippel and «The Knowledge of Being: Thomistic Metaphysics in the Contemporary Debate» by Rudi te Velde, both in *The Discovery of Being and Thomas Aquinas: Philosophical and Theological Perspectives*, edd. C. M. CULLEN, S.J. - F. T. HARRIS, The Catholic University of America Press, Washington, D.C. 2019.

the entire realm of being in itself and in light of its constituent principles, and not simply as experienced by the subject), and *qualitative* or perhaps better *non-quantitative*, in that metaphysics does not use numerical or quantitative measures but is rather descriptive[100]. When we consider the specific approach of Fabro to metaphysics, we will examine his *resolutio*.

Interdisciplinary study of perception

Given this framework and the perspectives of the particular sciences involved, a perspective synthesis for an interdisciplinary study of perception begins to emerge. In general, all the sciences agree that perception refers to what is *outside* of the subject somehow becoming intentionally present within the subject. In terms of raw mechanism this comes about by means of the physical stimuli and the senses; the intellect or mind, as well as previous experience, must play some role in the interpretation of those stimuli.

All of the sciences mentioned have something to offer regarding the particular question of perception. It is precisely in this division of roles and tasks, however, that lies the challenge of an interdisciplinary approach. While there is need for a precise and concrete question in order to formulate the entirety of an interdisciplinary approach, we will consider in general how the problem of perception might be approached with the combined forces of the aforementioned sciences.

As was mentioned earlier, philosophy is the highest of the sciences and hence it would seem that metaphysics – ontology is responsible for setting the initial framework of the questions of perception with regards to being, beings in general, knowledge of being, powers of the soul, and the like. It is within these *Weltanschauungen*, be they Kantian, Thomistic, Spinozist, that the empirical sciences are ordered and oriented. It is this philosophical context that must be established first.

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[100] For the Thomistic understanding of metaphysics, which will be considered in more detail in Chapter 1, see *De Trinitate*, q. 6, in particular a. 1, ad 1.

The question then arises of ordering the empirical sciences amongst themselves. For this, a chart summarizing the conclusions of the previous sections is useful:

Science	*Material Object*	*Formal Object Quod*	*Formal Object Quo*	Subjective or Objective?	Qualitative or Quantitative?
Phenomenology	**Phenomena (that which appears), and "'consciousness', with all sorts of mental processes, acts and act-correlates"**	**In light of how it appears to the subject (for some, this may include cultural, racial, and class factors)**	**The Phenomenological Method**	**Subjective**	**Qualitative**
Experimental Psychology	**Mind and Behaviors**	**In light of the proximate causes (habit, reward, etc.) of mind and behaviors**	**Tests and experimental methods, often involving self-report**	**Subjective**	**Quantitative**
Neuroscience	**Nervous system and its activities**	**In light of the proximate causes (neurons, neurotransmitters, etc.) of these structures and activities**	**Tests and experimental methods, often involving measurements of neural activity (CT, MEG, PET, fMRI)**	**Objective**	**Quantitative**
Metaphysics – Ontology	**Being *qua* being**	**In light of its ultimate causes**	**Through the use of reason (the phenomenological method, per Heidegger)**	**Objective**	**Qualitative**

As was said earlier, while each empirical science could investigate some aspect of the problem of perception on its own, when the question to be addressed specifically goes beyond the limits of the formal object of one particular science, that is, it *transcends* the formal object of one science, the others must be invoked.

For example, having adopted a Thomistic philosophical framework, which admits a hylomorphic union of body and soul, a doctrine regarding the emergence of faculties, one could ask: How does the union of body and soul and the emergence of faculties correspond to recent discoveries in neuroscience regarding perception? Likewise, an inquiry could be: Given the challenges presented in perceiving the world,

starting from the chemical level to difficulties in the mechanical processes of sensation, how does the intellect make sense of the data presented to it? Such complex questions go beyond simply one science and require multiple disciplines to interact.

How, then, to relate the individual empirical sciences? All study the various processes in the body that relate to perception but in different ways, as shown in the chart. Neuroscience gives the *objective* and *quantitative* changes that take place within the brain and neurological structures as objects are perceived, whereas both phenomenology and experimental psychology are *subjective* sciences. This is why Albertazzi contends that "experimental phenomenology describes (in terms of first-person accounts), while psychophysical or neurophysiological research explains (in terms of third-person accounts)"[101]. There is objectivity when a scientist notes that there is a change in neural activity, or that neurons are firing when previously they did not. Such measurements are objective and quantitative.

Nonetheless, is Albertazzi right to claim that this is an "explanation"? It depends on the meaning given to "explain". If what Albertazzi means is simply that a chemical and biological process has taken place, then her claim can stand, although this is a very narrow reading and is not much of an explanation. If Albertazzi means that the chemical and biological process explains the whole of perception, then her statement is false, because the simple movement of chemicals does not explain perception at all. It would be better to say that psychophysical or neurophysiological research *measures* or *examines* underlying changes that must play some role in perception, but that do not explain it completely.

Indeed, it seems that Albertazzi changes course a few pages later, as she writes that Köhler understood [experimental] "phenomenology as the analysis of the correlation[102] between pure phenomenology and neuroscientific analysis", and she adds that while "phenomena are 'correlatable' to the underlying neural events . . . they

[101] ALBERTAZZI, *Handbook*, 8
[102] That is, as a connection in the broadest sense.

are neither identifiable with them nor 'complementary' to them"[103]. The discovery of this link between the different fields is of the greatest importance[104].

It is precisely the examination of this correlation that requires experimental psychology and phenomenology. Through the manipulation of variables, experimental psychology reveals, in a *subjective* and *quantitative* manner, the processes that take place as the subject experiences an object. Sometimes experiments such as those involving blindsight reveal the existence of more primitive mechanisms that neuroscience must examine and explain. Likewise, sometimes the experiments reveal that perception of objects is more than simply the reception of stimuli. Again, as Albertazzi notes: "One of the basic assumptions of experimental phenomenology is that qualitative phenomena are irreducible to stimuli"[105]. In the words of Gestalt psychology, the whole is greater than the sum of the parts. Such exceedance escapes the investigation of neuroscience, and thus experimental psychology fills in the lacunae.

Similarly, pure phenomenology considers the subject's own reported experience of objects in a *subjective* and *qualitative* way. Here arises the final perceived object, as it were, what it is the subjects themselves report experiencing, including the influences of culture, class, and numerous other factors that are beyond the grasp of experimental psychology and neuroscience. Considered all together, these three sciences cooperate to provide a comprehensive examination of the processes of perception. It then returns to philosophy to make sense of these experiences within the context of ontological *Weltanschauung*, either incorporating them into that framework, or modifying the framework in order to accommodate the data.

For instance, consider the study of Benjamin Libet and Hans Kornhuber, who asked subjects to move their fingers at any time they wished in a ten-minute period. EEGs picked up a "readiness potential" three-quarters of a second before movement

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[103] ALBERTAZZI, *Handbook*, 22-23.

[104] See, for instance, V. S. RAMACHANDRAN, *The Emerging Mind: The Reith Lectures*, Profile, London 2003, 15.

[105] ALBERTAZZI, *Handbook*, 8

began, even though the subjects reported that their sensations of willing coincided with the actual movement of the finger. The neuroscientist Ramachandran reaches a very bold conclusion: "The experiment shows that free will is illusory; it cannot be causing the brain events because the events kick in a second earlier"[106].

How to make sense of the data? If the philosophical framework is that of metaphysical determinism then no further explanation is needed: the experimentation fits perfectly into the *Weltanschauung* of hard determinism. If the framework is of Thomistic derivation, then that philosophy framework must either reject or clarify the data, accept the data rejecting the interpretation, or accept the claim there is no free will and modify the *Weltanschauung*. Nonetheless, the phenomenological experience of free will, and psychological experiments that examine the same, would seem to favor a different interpretation of the data. Hence, there is truly a "common discourse" where each science plays its part.

Status quaestionis

Many works regarding the cogitative power begin by lamenting the lack or low quality of the secondary literature. In this regard, María Verónica Bulacio's 2017 work is unique as she claims: "Thanks to the work of so many scholars who in recent years have dedicated themselves to this task, gathering, ordering, and categorizing the texts of Aquinas, today it is possible to have a fairly complete vision of the Thomistic theory of the cogitative power and of its sources"[107]. We share Bulacio's appraisal of the situation: the problem is not so much a lack of literature as a lack of access to what has been written. Of the recent secondary literature regarding the cogitative power, two dissertations are of particular note: Mark J. Barker aforementioned 2007 dissertation, *The Cogitative Power: Objects and Terminology*, and Gustavo Hernán Muszalski's

[106] RAMACHANDRAN, *The Emerging Mind*, 104.

[107] M. V. BULACIO, *Educabilidad de la cogitativa a la luz de la antropología tomista*, Pontifical Urbaniana University, Rome 2017, 3: "Gracias al trabajo de tantos estudiosos, que en los últimos años se han dedicado a esta empresa, reuniendo, ordenando y categorizando los textos del Aquinate, es posible tener hoy una visión bastante integral de la teoría tomista de la cogitativa y de sus fuentes". Translation ours.

2020 doctoral dissertation *Cogitativa y Amistad: La naturaleza y el acto de la estimativa del hombre; su función en las diversas formas de amistad humana según santo Tomás de Aquino*[108]. These will be discussed at length in the first chapter.

Citations of Fabro in the secondary literature

Rather than individually list and examine all of the secondary literature, we present the texts in a chart in chronological order in the appendix. Multiple entries for the same year are organized alphabetically by the author's last name. The chart is sub-divided into three sections: the first section gives books, dissertations, and theses regarding the *vis cogitativa*, the second section lists articles published regarding the *vis cogitativa*, and the third section offers a selection of books and articles that, while not concerning the *vis cogitativa* directly, deal with it either indirectly or in the general framework of the internal senses. Granted that the division of materials among the three sections involves a certain degree of discretion and personal preference, as does the selection of materials for the third section, our division is certainly not the only one possible.

Given the difficulties of searching for theses, the list of theses is not meant to be exhaustive, but rather merely illustrative: we have searched the online databases at the University of Loyola Chicago, Saint Louis University, Ottawa University, the University of Toronto, Boston College, Fordham University[109], the University of Notre Dame, the University of Saint Thomas in Houston Texas, and the Catholic University

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[108] G. H. MUSZALSKI, *Cogitativa y amistad: La naturaleza y el acto de la estimativa del hombre; su función en las diversas formas de amistad humana según santo Tomás de Aquino*, Ateneo Pontificio Regina Apostolorum, Rome 2020.

[109] It is noteworthy that the Fordham school seems to be unaware of both Fabro and the cogitative power. There is no mention of either in the most representative theses and dissertations: L. T. O'CALLAGHAN, *The Function of Reflection in the Psychology of Saint Thomas Aquinas*, Fordham University, New York 1948, makes brief mention of the cogitative power, as does A. N. WOOD, *The Immateriality of the Intellect in Thomas Aquinas' Philosophical Psychology*, Fordham University, New York 2012. Neither mentions Fabro, nor does M. E. FARRELL, *The Notion of Participation in the "Prima Pars of the 'Summa Theologiae'" of St. Thomas Aquinas*, Fordham University, New York 1952, which instead seems to follow L. B. Geiger's understanding of participation.

of America, and included the most relevant titles. These universities were chosen because of their connections to Klubertanz and Dumont or their importance in the Catholic intellectual tradition in English.

Given that this dissertation focuses on the works of Fabro, references to Fabro are given as abbreviated earlier. Fabro's books and articles that have been cited in the secondary literature are shown in table 1.D to make the chronology clearer, and table 1.E gives works that are mentioned in the secondary literature but that we were unable to access or obtain.

To conclude this introduction, we call attention to the following points:

- Fabro insists that *FP* and *PP* are meant to be read together: "In my opinion, the two works [*FP* and *PP*] must complete each other and certainly the second [*PP*] will lose a lot of strength in its speculative applications if it is left to itself, just as also the first will appear too complex and arduous if one wishes to forget the aims that I have proposed to achieve in the second. In my first intention, the two works were to form two volumes of a single work; they were later separated in order to take greater care in the presentation of the two distinct moments of the research, and each of them in many respects can remain distinct and even sufficient from the point of view, analytic or synthetic, which inspires it"[110]. To really understand what Fabro is trying to accomplish in *PP* requires a look at *FP*. The secondary literature almost entirely neglects *FP*, thus dividing a work and ignoring the half that provides a foundation for the Thomistic analysis.
- Few authors make reference to *IRPS* and *PISM*, although Fabro explicitly states that, together with *PPS* and *KPP*, the four articles form a series of studies regarding the problem of perception[111].

[110] C. FABRO, *FP*, ED.IVI, 2006, 25.

[111] C. FABRO, *PISM*, 28, footnote: "Questo articolo è il *quarto* di una serie di studi intorno al problema della percezione [See]: I, *Il problema della percezione sensoriale,* Bollettino Filosofico IV, 1 (Roma 1838) pp. 5-63. II, *Knowledge and Perception in the Aristotelic Thomistic Psychology,* The New Scholasticism XII, 4 (Washington 1938) pp. 236-266. III,

The end result is that, even when Fabro is cited in the secondary literature, there is no systematic treatment of his work regarding the cogitative power. It is precisely this treatment that we propose to undertake in the following chapter.

Idealismo e Realismo nella percezione sensoriale, Rivista di Filosofia Neo-scolastica XXXI, 2 (Milano 1939), pp. 117-135. In questi lavori si sono cercati i principi per una soluzione tomistica del problema della percezione «sensoriale» di cui oggi tanto aspramente si discute nella psicologia".

Chapter 1

The *vis cogitativa* of Thomas Aquinas and its object according to Cornelio Fabro

In order to set the stage for establishing a Thomistic embedded and enactivist view of perception, we must begin by examining the foundations of Thomistic epistemology regarding the role of the *vis cogitativa* and its object. This will be done, as indicated in the introduction, according to the Thomistic vision of Cornelio Fabro. In ST I, q. 77, a. 3, Aquinas, following Aristotle, notes the powers of the soul are to be distinguished according to their acts and their objects. One question later, in q. 78, a. 4, Aquinas distinguishes an internal sense that is responsible for perceiving individual intentions of objects. Although there is no difference between the sensible forms that are received, there is a great distinction between the intentions perceived by animals devoid of reason and those perceived by humans, as the former proceeds simply by instinct, and the latter by means of *collatio*, the collation of ideas. Elsewhere Aquinas refers to these individual intentions as *sensibili per accidens*. It is to the examination of the cogitative power and its object as found in Cornelio Fabro's works to which we now turn.

Status quaestionis: Considerations of Fabro's doctrine

Many works regarding the cogitative power begin by lamenting the lack or low quality of the secondary literature. In this regard, María Verónica Bulacio's 2017 work is unique as she claims, "Thanks to the work of so many scholars who in recent years have dedicated themselves to this task, gathering, ordering, and categorizing the texts

of Aquinas, today it is possible to have a fairly complete vision of the Thomistic theory of the cogitative power and of its sources"[112]. Bulacio's appraisal of the situation appears sound: the problem is not so much a lack of literature as a lack of access to what has been written. Of the recent secondary literature regarding the cogitative power, two recent doctoral dissertations are of particular note, in part on account of their considerations of Fabro's work: Mark J. Barker's aforementioned 2007 dissertation, *The Cogitative Power: Objects and Terminology*, and Gustavo Hernán Muszalski's 2020 doctoral dissertation *Cogitativa y Amistad: La naturaleza y el acto de la estimativa del hombre; su función en las diversas formas de amistad humana según santo Tomás de Aquino*[113].

The Cogitative Power: Objects and Terminology

Barker's text provides a very comprehensive introduction, not only to the *vis cogitativa*, but to the internal senses in general. His approach to the topics is an attempt at "a 'cross-school' study that employs the Analytic, Aristotelian, and Gilsonian (Historical) approaches to St. Thomas"[114]. It is the Analytic approach that dominates the discussion in the properly speculative part, although the first part, dedicated to a thorough examination of the *status quaestionis* and which includes a well-researched discussion regarding the division of the internal senses and their objects, provides the historical context for it.

The properly speculative part examines "the topic of the cogitative's objects and role in knowing kinds"[115], and explores the role of the *vis cogitativa* in the formation of the first universal. This represents a contrast to the position of Klubertanz,

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[112] BULACIO, *Educabilidad de la cogitativa*, 3: "Gracias al trabajo de tantos estudiosos, que en los últimos años se han dedicado a esta empresa, reuniendo, ordenando y categorizando los textos del Aquinate, es posible tener hoy una visión bastante integral de la teoría tomista de la cogitativa y de sus fuentes".

[113] MUSZALSKI, *Cogitativa y amistad*. I thank Dr. Muszalski for generously sharing with me the digital version of his thesis, which greatly aided my research.

[114] BARKER, *The Cogitative Power*, 21.

[115] BARKER, *The Cogitative Power*, 14.

who maintains that, for Aquinas, the cogitative power is "operative in a special way in the intellectual knowledge of the singular only in the practical order"[116].

Another goal Barker proposes is "to create an exhaustive and accurate Bibliography [*sic*] containing, to the best of my knowledge, every treatment of the cogitative power in the secondary literature over the past 120 years"[117]. Barker's efforts have produced a useful resource which Muszalski's 2020 thesis supplements well. This work, which embraces both bibliographies as well as numerous other findings, is under no pretense to be an all-inclusive bibliography for reasons that will be mentioned; the chart that follows summarizes our findings, considered in relation to Fabro, and, for the sake of brevity and assuming the chart's key points are evident, we will not provide a lengthy examination of each individual text. However, we would note three points where Barker's work regarding the *status quaestionis* and the *vis cogitativa* could be made more precise, regarding: (1) the books published on the *vis cogitativa* between Klubertanz's 1952 book and Barker's 2007 dissertation; (2) the use of Fabro, and; (3) the nature and quality of the secondary literature, in particular the historical setting of research regarding the *vis cogitativa*.

Regarding the first, Barker asserts that "the only other book published in the 55 years since Klubertanz's *Discursive Power* is *La cogitativa en Tomás de Aquino y sus fuentes* by Miguel Alejandro García Jaramillo"[118], a text which he claims is referenced nowhere else in the secondary literature[119]. García Jaramillo's text is now cited with some frequency, and it is not pertinent for our work to examine whether there were references to it prior to 2007. However, Barker's first claim, i.e. that García Jaramillo's was the only book published on the cogitative power between 1952 and 2007, is simply erroneous. There have been at least three other doctoral dissertations on the cogitative power that Barker could have accessed: Luigi Mazzone's 1995 *La vis cogitativa nella antropologia di san Tommaso d'Aquino* (Pontifical University Saint Thomas

[116] KLUBERTANZ, *The discursive power*, 264.
[117] BARKER, *The Cogitative Power*, 15.
[118] BARKER, *The Cogitative Power*, 10.
[119] BARKER, *The Cogitative Power*, 11.

Aquinas)[120], André Simard's 1956 *La nature de la Cogitative d'après Saint Thomas d'Aquin* (Pontifical University Saint Thomas Aquinas)[121], and Richard Edward Dumont's 1952 *An Historical Sketch of the "Cogitative Force" in the Middle Ages: Its Transition through the Orient to the Occident* (University of Ottawa)[122]. All three are doctoral dissertations, just as García's was his doctoral dissertation at the Universidad de Navarra. Furthermore, Barker fails to mention the work of Donato González, *La cogitativa según Santo Tomás*, an address given and later published in book form[123], as well as Tommaso M. Bartolomei's 1958 "La conoscenza intellettuale del singolare corporeo e la funzione della cogitativa", published in *Divus Thomas*[124]. Despite Barker's best efforts, his bibliography is incomplete. Possible reasons for these omissions will be discussed below.

Secondly, regarding Cornelio Fabro, Barker recognizes the insights of the Italian philosopher regarding the *vis cogitativa* and laments the lack of engagement between the English-speaking world and Fabro[125]. Barker's use of Fabro is to be commended, and his conclusion that the secondary literature in English largely ignores *Percezione e Pensiero* is sound, as can be seen in the charts that follow. However, Barker's own use of Fabro is in fact quite limited, as he cites only two works of Fabro (one article and one book), and even this use seems to be almost an afterthought[126]. It

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[120] L. MAZZONE, *La vis cogitativa nella antropologia di san Tommaso d'Aquino*, Pontifical University Saint Thomas Aquinas, Rome 1995.

[121] A. SIMARD, *La nature de la Cogitative d'après Saint Thomas d'Aquin*, Pontifical University Saint Thomas Aquinas, Rome 1956.

[122] R. E. DUMONT, *An Historical Sketch of the "Cogitative Force" in the Middle Ages: Its Transition Through the Orient to the Occident*, ProQuest LLC, Ann Arbor 1952.

[123] D. GONZÁLEZ, «La cogitativa según Santo Tomás», La Universidad de Sto. Tomas, Manila Discurso leído en la solemne apertura del curso académico 1960-1961; Archivo de la Universidad de Santo Tomas, España, Manila, Philippines.

[124] T. M. BARTOLOMEI, «La conoscenza intellettuale del singolare corporeo e la funzione della cogitativa», *Divus Thomas* 61 (1958), 157–192.

[125] BARKER, *The Cogitative Power*, 11.

[126] Indeed, Barker's reading of Fabro is, at times, quite superficial. For instance, Barker claims that while Fabro requires knowledge of past sensations to "be factored in to the process of objective unification", he disagrees with the Italian philosopher, saying this is "only necessary in certain cases", and simply leaves the thought there without a further explanation or defense (see BARKER, *Cogitative Power*, 145). Furthermore, Barker claims that "most scholars either assume that incidental sensibles and individual intentions are the exclusive

is noteworthy that on page 145, towards the end of Chapter 4, which ends the discussion of "the different roles and objects of the internal senses, particularly the cogitative, and some basic terminology"[127] and which concludes the first part of the dissertation (before entering into the properly speculative second part which considers how the cogitative serves in the formation of universals), Barker cites *Percezione e Pensiero* but admits in the footnote that he read Fabro's work only "after having formulated my own argument"[128]. One wonders (and the absence of citations lends credence to the theory) if Barker read Fabro towards the end of his research. Indeed, there are three references to Fabro in chapters 5 through 9, with an additional four in the concluding chapter. This could stem from the fact that the works of Fabro that Barker cites have little to bear on the formation of the first universal; however, had Barker wanted to engage Fabro more in depth, there are texts that would have been of use to him. For instance, the one article written by Fabro and cited by Barker is one of a series of four, all related to perception.

Third and finally, Barker argues that the extant secondary literature is generally poor and superficial. He notes that:

> Much of the remaining secondary literature is not of very high quality; one sometimes has the impression that the authors *parlent pour rien dire*, as the French say. Cases in point are the generally superficial or confused analyses in the lengthy "La cogitativa in S. Tommaso" by the Italian Capuchin Angelo da Castronovo, or in V. Rodriguez's "La cogitativa en los procesos de conocimiento y afección." Such scholars tend not to take into account previous research[129].

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domain of the cogitative and focus exclusively on action-oriented intentions regarding the estimative or are silent on this topic". In a footnote, Barker gives «KPP», 353, as an example of this assumption. However, the context of the Fabrian text is notably human sensibility and perception: Barker has criticized Fabro for noting that "St. Thomas expressly attributes to the *cogitativa* the apprehension of the *sensibile per accidens*" and claims that Fabro ignores Aquinas's other texts where animals are granted access to the *sensibile per accidens*. However, such a claim is to misunderstand the context, and to fault Fabro for an oversight he was never intending to discuss. Indeed, as will be shown later, Fabro explicitly mentions texts where Aquinas grants this access to animals and concurs with arguments in favor of it, such as the section *"Form" and "Intention" in perception* in *PP*, as well as the *EC* article on the estimative.

[127] BARKER, *The Cogitative Power*, 22.

[128] BARKER, *The Cogitative Power*, 145.

[129] BARKER, *The Cogitative Power*, 22.

While one can agree with Barker's opinion that much of the secondary literature is often superficial in terms of providing critical analysis and going beyond simply repeating what Thomas says, or makes scant reference to other secondary literature, we hesitate to be so overwhelmingly critical of these previous authors and their intentions for three reasons.

First, Barker notes the almost complete absence of secondary literature on the *vis cogitativa* prior to Klubertanz's text[130], as well as pointing out that there are "at least a hundred references to the cogitative and estimative in one form or another in Aquinas's extant corpus"[131]. In other words, to simply find and organize the *vis cogitativa* texts (before the days of the *Index Thomisticus*) and then present them in a coherent order is already an accomplishment. Klubertanz presents the texts in chronological order, but there are other possible arrangements, as, for instance, Ernesto Rüppel notes in his article[132]. Without much previous material to guide them, faced with a mountain of texts to sort through on their own, without digital resources, a simple exposition of the texts at face value is not *parler pour rien dire*, *vis-à-vis* Barker, but rather to make a foray into a discussion that was largely ignored for some 700 years.

Second, even granted the existence of secondary literature, the question arises of how *accessible* the literature was at the time. A case in point is *An Historical Sketch of the "Cogitative Force" in the Middle Ages: Its Transition through the Orient to the Occident*, Richard Edward Dumont's 1952 doctoral dissertation. Published in the same year as Klubertanz's book *The Discourse Power*, it is understandable that Dumont would have been unable to cite that particular text. However, given that five years had elapsed since the publication of Klubertanz's dissertation, could Dumont at least have cited or referenced the earlier version? Joseph A. Muenzer's 1952 master's thesis, *The Role of the Vis Cogitativa in the Prudential Syllogism According to St. Thomas*

[130] BARKER, *The Cogitative Power*, 7.
[131] BARKER, *The Cogitative Power*, 6.
[132] "Não seguimos a Klubertanz na ordem cronológica dos textos por dois motivos: 1.° porque impediria a sistematização que precisamos de fazer; e 2.° porque S. Tomas não evoluiu nesta materia" E. RÜPPEL, «A 'vis cogitativa' de S. Tomás», 128.

Aquinas[133], cites, not a pre-publication version of *The Discursive Power*, but rather Klubertanz's unpublished doctoral dissertation. If Dumont began his doctoral studies in 1950[134], it seems that either he or his advisor could have accessed Klubertanz's work.

By contemporary standards, it would be quite odd, even negligent, not to mention a doctoral dissertation written on essentially the same topic a few years prior; it would be stranger still for an advisor not to mention this to a student when deciding on a topic. However, when seen in the historical context, and not according to contemporary standards, the omission is much more understandable.

Being a Jesuit himself, Muenzer would likely have found it easy to have access to the work of Klubertanz, a fellow Jesuit. Although the city of Chicago in general and Muenzer in particular (presumably) belonged to the Chicago Province, while the city of St. Louis in general and Klubertanz in particular both pertained to the Missouri Province[135], the division of the provinces took place in 1928, around the time when Klubertanz entered the Society[136]. Likewise, Klubertanz was born in Wisconsin which, until 1955, pertained to the Chicago Province. Presumably close ties within the same

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[133] J. A. MUENZER, *The Role of the Vis Cogitativa in the Prudential Syllogism According to St. Thomas Aquinas*, Loyola University Chicago, Chicago 1952.

[134] 1950 seems likely since Dumont's master's thesis at Boston College, «The Boundaries of Platonic Theology», was approved on June 8, 1950. See R. E. DUMONT, *The Boundaries of Platonic Theology*, Boston College, Boston 1950. From John J. Burns Library, Boston College, II. Many thanks to Andrew Isidoro and the staff at the John J. Burns Library for facilitating access to this work.

[135] Klubertanz was a member of the Missouri province when he undertook his doctoral studies. Cf. «Master's Theses», *Jesuit Educational Quarterly* 2/3 (1939), 154, which announces Klubertanz's master's thesis and declares him a member of the Missouri Province. However, *Jesuit Educational Quarterly* 25/3 (1963), 188, has Klubertanz as a member of the Wisconsin province, as does *Jesuit Educational Quarterly* 27/3 (1965), 190, and *Woodstock Letters*, 95/1, (1966), 10. In *Jesuit Educational Quarterly* 31/Supp. (1969), 267, he is again listed as a member of the Missouri Province.

[136] Klubertanz entered the Society in 1931. See the section *Vita Auctoris*, 172, of his Master's thesis, G. P. KLUBERTANZ, *A Sense-Line Analysis of the Rhetoric in Cicero's De Imperio Cn. Pompei*, Saint Louis University, Saint Louis 1938. From the Saint Louis University Archives at the Pius XII Library. Many thanks to Caitlin Stamm and the archival staff for facilitating access to this work.

religious order and province would have facilitated the exchange of ideas and resources[137].

This would not have been the case for Dumont. Although he studied under the Jesuits at Boston College, and the Jesuit John McCarthy sat on his master's committee, they would have pertained to the New England province of the Jesuits. Dumont then studied for his doctorate at Ottawa University with Fr. Jacques Croteau, O.M.I., as his director. It is entirely possible that if he expressed an interest in the cogitative power, he was directed to Ottawa in order to study with Rodolphe Hain, O.M.I., and Julien Péghaire, C.S.Sp[138].

This difficulty in accessing material could even be said of Klubertanz. We can be almost certain that the Jesuit never in fact read Fabro's Italian article even though he mentions it, and this because he cites incorrectly *PPS*, «Il problema della percezione sensoriale», as "L'Organizzazione [*sic*] della percezione sensioriale [*sic*]" and "L'Organizzazione [*sic*] della persezione [*sic*] sensioriale [*sic*]" in the text and bibliography, respectively, of *The Discoursive Power*. It could reasonably be asked from where such maimed citations arise, and it appears that the Jesuit simply repeats the erroneous title of the article as found in footnote 4 of Fabro's «Knowledge and Perception in the Aristotelic-Thomistic Psychology». Had Klubertanz actually had the article in hand and read it, he would have immediately noticed the error. In passing, it should be noted that Dumont cites «Il problema della percezione sensoriale» correctly, and gives the pages as 26-62, wherein is contained the article's second section, the Aristotelian-Thomistic explanation of sensorial perception.

Third, even now more secondary literature on the *vis cogitativa* is coming to light. This is the result of the increased digitalization of archives and documents,

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[137] Unfortunately, it seems there is no written confirmation of this theory. Caitlin Stamm, University Archivist at Saint Louis University, notes that a search of the archives did not yield "any relevant material about Klubertanz's dissertation in our collections" (personal conversation via email, 16/03/2021), in particular correspondence between Muenzer and Klubertanz.

[138] While it is true that Julien Péghaire was at the Collège Saint-Alexandre in Limbour, Quebec, the cities are minutes apart, simply separated by the Ottawa River.

wherein universities have begun the lengthy process of cataloguing and organizing past dissertations and theses and availing them to researchers. Hence, it could be argued that even more recent works "tend not to take into account previous research" simply because said research is difficult to find and access, just as was the case fifty years ago.

Indeed, in broad terms, one could speak of a North American school, a South American school, and a European school of the *vis cogitativa*. It is not our intention to argue for a strict division of these schools, but simply to indicate that only now does it seem these three realms of thought truly have the possibility to correspond and dialogue in earnest.

In short, we do not criticize Barker's assertations *en masse*, but we would argue they must be tempered with a sense of historical context. For these reasons, it should be noted with caution that our bibliography of the secondary literature, although complete to the best of our knowledge, likely does not contain all the dissertations and certainly not all the theses regarding the cogitative power that have been published. Those interested in the topic would do well to search dissertations and theses in order to find recently "uncovered" works facilitated by the increased digitalization of university libraries.

Cogitativa y Amistad

Gustavo Hernán Muszalski's work focuses on the role of *vis cogitativa* in friendship. The overall perspective of the thesis is that much scholarship on this internal sense over-intellectualizes the power. Hence, in his concern to "de-intellectualize" the power, he refers to it as the estimative power in man.

Although Muszalski's work is thoughtful and well-researched, and certainly some philosophers do tend to blur the distinctions between the intellect and the *vis cogitativa*, such a rigid division seems to force Aquinas's texts. Muszalski's claims will be addressed later, but it is necessary simply to point out his selective use of texts from Fabro. His is the only work that cites Fabro's extensive treatment of the *vis*

cogitativa in *La svolta antropológica di Karl Rahner*[139]. However, he interprets Fabro's text so as to see Rahner and Fabro in agreement regarding the role of said power, a notable conclusion, given that the text is written precisely as a refutation of Rahner.

Furthermore, in a text referenced by Muszalski, the second part of Mario Sacchi's «La participación de la inteligencia en la experiencia sensible»[140], Sacchi discusses Fabro's refutation of Rahner and cites several articles where Fabro denounces the Jesuit's thought. However, Muszalski makes no reference to these articles. Fabro is not above critique, as will be seen, but it is noteworthy that Muszalski reaches a conclusion regarding Fabro's thought without having cited all the articles that are pertinent to the discussion.

Conclusions from the secondary literature

A review of the secondary literature in general (see, in the appendix, tables 1.A and 1.B) indicates Fabro's understanding of the cogitative power is perhaps understudied and underappreciated. Nevertheless, recent research by Barker and Muszalski has affirmed the importance of Fabro's work and encourages further dialogue with other realms of study. For this reason, we turn to our methodological considerations, following the lead of Agazzi.

Methodological considerations

In accordance with our methodology, 1) the different criteria that each discipline uses to gather its *facts* must be specified; 2) the *theoretical context* that each discipline accepts in order to explain those facts must be laid out, and; 3) based on these criteria and on this context, the concepts to be used must be *clearly defined*, in order to avoid equivocation[141].

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[139] C. FABRO, *La svolta antropológica di Karl Rahner*. ED.IVI, Segni, 2011.

[140] M. E. SACCHI, «La participación de la inteligencia en la experiencia sensible (II)», *Sapientia* 30/117 (1975): 189-198.

[141] AGAZZI, «El desafío», 248-9.

Methodology of Fabro's metaphysics

In the introduction, it was argued that metaphysics is the study of being *qua* being, and that the metaphysician gradually progresses from knowledge of particular or individual beings to knowledge of being *qua* being. While for both Aquinas and Heidegger, metaphysics is an *inductive*, *objective*, and *qualitative* or *non-quantitative*, science, here we can consider the Fabrian notion of metaphysical method in greater detail.

In his book *Metaphysica*, Fabro contends that the object of metaphysics is "reality considered in its totality (materially), or the *Absolute*, in which both the whole of reality as well as of knowledge of reality have their foundation"[142]. For this reason, Fabro contends that metaphysics, as opposed to physics or mathematics, "proceeds in the highest way, that is, almost *purely intellectually*"[143]. Fabro's argument is essentially that used by Aquinas in his commentary on Boethius' *De Trinitate*. Regarding the object of metaphysics, Aquinas notes that in the process of analysis, that is, of induction, the mind goes from the more particular forms to the more universal ones: "Now that which is most universal is common to all beings; and so the ultimate end of analysis in this process is the consideration of being and the properties of being as being. . . these are the objects of divine science; namely, the separate substances and that which is common to all beings. It is evident, therefore, that its thinking is supremely intellectual"[144].

In a reply to an objection, we can understand what Fabro means by this intellectual method when Aquinas clarifies: "We say that divine science [i.e., metaphysics] proceeds intellectually not as though it makes no use of reason, moving forward from principles to conclusions, but because its reasoning most closely approaches intellectual consideration and its conclusions are closest to its

[142] C. FABRO, *Metaphysica. Corso di metafisica*, ED.IVI, Segni, Italy 2022, 19.
[143] FABRO, *Metaphysica*, 19.
[144] *De Trinitate*, q. 6, a. 1, corpus.

principles"[145]. In other words, metaphysics is not intellectual in the sense that the knowledge it provides is *a priori* or devoid of reason. Rather, the consideration of metaphysics is intellectual in that it prescinds from particular, individual objects in order to consider what is common to all of them. For this reason, we can affirm what was stated in general in the introduction and apply it specifically to Fabrian metaphysics: for Fabro, metaphysics is *objective* and *non-quantitative*.

However, what is particular to Fabro is his *metaphysical methodology*. The methodology of Fabrian metaphysics is *resolutio*, as opposed to *abstraction* or *reflection*. As Jesús Villagrasa notes, there is agreement among Thomists that there must be a *resolution* or *reduction* (understood in the broad sense) to some first ontological principle; the disagreements stem from the consideration of *how* this is to be done[146]. In other words, the metaphysical method could be considered inductive in the broad sense of the term, since the concern is to move from the multiplicity of beings to one principle. However, the means of obtaining that induction remains to be discerned.

In his doctoral dissertation, *Being and Participation: The Method and Structure of Metaphysical Reflection according to Cornelio Fabro*, Jason Mitchell notes that the *resolutio* can be divided into logical and metaphysical, the second of which can, in turn, be divided into *resolutio secundum rationem* and *resolutio secundum rem*[147]. Fabro,

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[145] *De Trinitate*, q. 6, a. 1, ad 1.

[146] J. VILLAGRASA, «La resolutio come metodo della metafisica secondo Cornelio Fabro», *Alpha omega* 4 (2001), 35–66. Speaking of the 1972 convention that Fabro and many other professors of philosophy attended, Villagrasa notes: "Se nel Medioevo era così [i.e., that metaphysics did not need to concern itself with a return to the foundation], certamente, oggi non lo è più. Infatti, l'impressione generale che si ricava dagli atti è che tutti i partecipanti erano d'accordo nell'identificare la risoluzione o riduzione al *primum* o al *fundamentum* come il compito essenziale della metafisica, ma che non era affatto chiaro *come realizzare* il compito, questo ritorno al *primum*… B. Mondin cerca di formulare la questione in dibattito in questi termini: «In che modo si trasforma la dedizione e ostensione dell'essere da oscura e implicita in percezione chiara e esplicita? Le proposte qui sono state tre: astrazione, riflessione, risoluzione»": 40-41.

[147] J. MITCHELL, *Being and Participation: The Method and Structure of Metaphysical Reflection according to Cornelio Fabro*, Pontifical Athenaeum Regina Apostolorum, Rome 2009.

states Mitchell, does not clearly distinguish between these two sorts of metaphysical *resolutio*, but other thinkers, such as Villagrasa and L. Romero, do[148]. For instance, Villagrasa, basing himself on Aquinas' commentary on the *De Trinitate*, q. 6, a. 1, contends that:

> A discourse is always a passage from one thing to another (*ab uno in aliud*), but sometimes, the one and the other are distinct in reality, and other times note. Reason discourses not only *secundem rationem* —by means of intrinsic causes— but also *secundum rem*, according to extrinsic causes. The *resolutio secundum rationem* or reduction of one thing into its intrinsic causses or constitutive principles — which are not 'something else' or 'separate things'; the *resolutio secundum rem* seeks the extrinsic causes, which, rather, are indeed 'something else'[149].

As Mitchell summarizes Villagrasa:

> *Resolutio secundum rationem* deals with the predicamental participations (substance and accidents, matter and form) and the transcendental participation of essence and *esse*, which are explained as intrinsic principles and according to the composition of act and potency. *Resolutio secundum rem* founds the participated perfections in the separate perfection, the real extrinsic cause of the participants[150].

In this way, then, Fabro's metaphysical method, when applied to the problem of perception, would be a *resolutio secundum rationem*, in that Fabro tries to resolve the various faculties into the one soul or form that is their source, and which has need to these faculties so as to perform the operations necessary for its nature.

In this way, the *metaphysical notion of participation* comes to take on great importance as the key for understanding perception and resolving it into its intrinsic principles. In Fabro's words, "in Thomistic speculation the notion of participation expresses the ultimate point of reference both from the static viewpoint of the creature's structure and from the dynamic viewpoint of its dependence on God"[151]. It is by participation that Fabro resolves the whole of reality, since it is in terms of taking part, to lesser or greater degree, of aspects of God's infinite being and perfections that

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[148] See MITCHELL, *Being and Participation*, in particular 355, 694-695, and 833.

[149] VILLAGRASA, «La resolutio come metodo della metafisica secondo Cornelio Fabro», 61. Cited in MITCHELL, *Being and Participation*, 695, but the translation is mine.

[150] MITCHELL, *Being and Participation*, 695-696. Mitchell is referring to VILLAGRASA, «La resolutio come metodo della metafisica secondo Cornelio Fabro», 65.

[151] C. FABRO, *Selected Works of Cornelio Fabro: Vol. 1 - Selected Articles on Metaphysics and Participation*, ed. N. DREYER, 2015, 83.

creatures come to form an orderly universe. As our author notes, "From the principle of metaphysical continuity and affinity emerges a conception of the world as an orderly solidarity of all beings… This structure of the world according to the various degrees of participation proceeds in an ascending order"[152].

This is precisely the argumentation that Aquinas follows when examining the various powers of the soul in the *Summa*. In ST I, q. 77, a. 3, Aquinas, following Aristotle, notes the powers of the soul are to be distinguished according to their acts and their objects. For this reason, in q. 78 Aquinas begins to address the various divisions of the soul's powers. A first division, given in a. 1, is of the five genera of powers into vegetative, sensitive, appetitive, locomotion, and intellectual. As Aquinas notes, three of these can be called souls, that is, intellectual, sensitive, and vegetative, and four can be called modes of living. The reason for this first division, into souls, is to be found in the way the operations of the soul transcend or surpass the corporeal nature. The operations of the soul that transcends corporeal nature, so much so that the operations are not even performed by means of a bodily organ, are intellectual powers or the operations of the rational soul. Beneath these are operations of the soul performed "through a corporeal organ, but not through a corporeal quality"[153]. These are the operations of the sensitive soul. Lastly, we have the operations of the vegetative soul which are "performed by a corporeal organ, and by virtue of a corporeal quality"[154]. Aquinas gives digestion as an example, because, according to his science, digestion takes place by means of heat.

The second division, regarding the modes of living or powers of the soul, concerns the object of the power. Here, we find three genera of powers. The first are the vegetative powers, "the object of which is only the body that is united to that soul; the powers of this genus are called *vegetative* for the vegetative power acts only on the body to which the soul is united"[155]. Second, there are powers which concern a more

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[152] FABRO, *Selected Works of Cornelio Fabro: Vol. 1*, 91-92.
[153] ST I, q. 78, a. 1, corpus.
[154] ST I, q. 78, a. 1, corpus.
[155] ST I, q. 78, a. 1, corpus.

universal object, "namely, every sensible body, not only the body to which the soul is united. And there is yet another genus in the powers of the soul, which genus regards a still more universal object—namely, not only the sensible body, but all being in universal"[156]. Hence, what we see is an increasing independence from matter: although Aquinas does not address the issue here, elsewhere the angels are presented as wholly spiritual beings, though created and limited, and, above them, the infinitely perfect Divine being.

Since these latter two genera of powers concern what is external to the creature, Aquinas contends that the external objects can be united to the subject in two ways: they can either have "natural aptitude to be united to the soul, and to be by its likeness in the soul" or "the soul itself [can have] an inclination and tendency to the something extrinsic"[157]. The first division concerns the sensitive and intellectual powers, whereas the second gives rise to the appetitive power ("referred to something extrinsic as to an end, which is first in the intention") as well as the locomotive power ("in respect of which the soul is referred to something extrinsic as to the term of its operation and movement")[158]. From this arises a hierarchy of modes of living: plants have only vegetative powers, the lowest animals have the sensitive powers, but not locomotion, and perfect animals have both sensitive powers as well as locomotion. Above these are those with intellectual powers. Aquinas notes that sense and appetition go hand in hand, since "wherever there is sense there is also appetite"[159].

It is on this basis Aquinas later comes to distinguish between the external and internal senses (a. 3). In a. 4, we are given the reason for dividing the internal senses: an animal must be able to perform all the operations necessary for its life, and if these actions cannot be reduced to one same principle, there must be attributed to diverse powers.

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[156] ST I, q. 78, a. 1, corpus.
[157] ST I, q. 78, a. 1, corpus.
[158] ST I, q. 78, a. 1, corpus.
[159] ST I, q. 78, a. 1, corpus.

A priori, according to Aquinas' science, reception and retention cannot be reduced to one same sense, because "to receive and retain are, in corporeal things, reduced to diverse principles; for moist things are apt to receive, but retain with difficulty, while it is the reverse with dry things. Wherefore, since the sensitive power is the act of a corporeal organ, it follows that the power which receives the species of sensible things must be distinct from the power which preserves them"[160]. Likewise, it is one thing to perceive the forms, such as color and shape, and another to perceive the intentions, meaning, "other advantages and uses, or disadvantages"[161]; for instance, the sheep runs from the wolf, not because of its size or color, but rather because it "senses" danger. Hence, based on these divisions, Aquinas concludes that there are four internal senses: the common sense receives sensible forms, and the imagination retains them; the cogitative or estimative power serves for the "apprehension of intentions which are not received through the senses" and the memory retains these intentions.

A question yet remains: why does Aquinas make a distinction between the estimative power in irrational animals and the cogitative power in humans? The answer is partially to be found in participation. While the difference between animals and man is that man is rational, meaning, he possesses an intellect and a will, this distinction redounds even to the lower faculties which are ordered to the higher ones. As Aquinas will note, the estimative power of a particular animal is naturally limited to detecting certain intentions (although training can expand this realm of intentions). Aquinas states as much in his commentary on Aristotle's *De Anima*:

> Nevertheless, this capacity [i.e., the cogitative power] is in the sensitive part of the soul, for the sensitive power at its highest—in man, in whom the sense power is joined to the intellectual—has a certain share in the intellectual power [*participat aliquid de vi intellectiva*]. But the irrational animals' apprehension of individualized intentions occurs through a natural estimation, in virtue of which a sheep recognizes its offspring by sight, or hearing, or something of that sort[162].

In man, the intellect is open to the whole of being; it is capable of knowing the abstract essences of things. However, there must be some faculty that serves as a bridge

[160] ST I, q. 78, a. 4, corpus.
[161] ST I, q. 78, a. 4, corpus.
[162] DA bk. 2, lect. 13, n. 397.

between the sensible world and the intellectual world of the abstract. This bridge is precisely the cogitative power, which collates or sorts through individual intentions; the cogitative power fills the niche between the material world and the intellect. In a sense, whereas the estimative power is limited to particular beings, the cogitative power participates in the intellect's infinite openness to beings. In this way, the cogitative power *ascends* to the intellect so as to participate in it.

Yet, on the same token, the cogitative power serves the intellect as the intellect *descends* to the particulars by means of it. In other words, we could say the cogitative power serves both for an *exitus* and a *reditus* of the intellect: the intellect goes out to particulars by means of the cogitative power, and those particulars return to the intellect by means of the same power. For Pseudo-Dionysius, and Aquinas who follows him in this, the principle that "the highest of the lower touches the lowest of the higher" flows from a *Weltanschauung* that sees the whole of creation as an *exitus* from God and a *reditus* to Him. This overarching vision of creation, notes Fran O'Rouke, is also found in each level of creation: "Each level of being, at its highest peak, participates after a manner in its superior, possessing in rudimentary form and incipient mode the perfection of the level which surpasses it. Conversely, it transmits to its immediate inferior something of its own perfection and excellence"[163]. Hence, the *exitus – reditus* structure of the world is also verified in the beings themselves that make up that world.

Hence, we would anticipate that, whatever the cogitative power does, it must involve the individual intentions, and it should have both an ascending and a descending function. In other words, since the cogitative is the bridge between the sensible realm and the intellectual, we should find two operations or tasks: one as this power presents information from below, i.e., from the external and internal senses, to the intellect, and another as this same power receives or passes down information from the intellect above. This *exitus – reditus* structure not only explains the basis of the principle that the highest of the lower touches the lowest of the higher and hence the

[163] F. O'ROURKE, *Pseudo-Dionysius and the Metaphysics of Aquinas*, E. J. Brill, Leiden 1992, 264.

participation that we observed earlier, but also gives us the ability to divide the cogitative power's functions according to these two movements.

The cogitative's highest ascending function

In his commentary on Boethius' *De Trinitate*, Aquinas argues that the more a science deals with particulars, the less certain the science becomes: "the more a science draws close to particulars (as do practical sciences like medicine, alchemy, and ethics), the less certain they can be because of the many factors to be taken into account in these sciences, the omission of any one of which will lead to error, and also because of their variability"[164]. Hence, the divine science, or metaphysics, is the most certain science, because it considers "the separate substances (to which our knowledge of the sense world gives us inadequate access), and also . . . the principles common to all things (which are most universal and therefore furthest removed from the particular things falling under the senses)"[165]. It is true that it is removed from our normal way of knowing, that is, by means of sensible things, but it is also the most intellectual.

For this reason, the cogitative power's formation of the *experimentum* or schema might be its highest function in the ascending order. As Aquinas notes in his commentary on Aristotle's *Metaphysics*, "Just as one experiential cognition comes from many memories of a thing, so does one universal judgment about all similar things come from the apprehension of many experiences"[166]. By coordinating and collating the individual intentions, it moves beyond the sphere of the immediately present and sensible, and instead forms a general pattern or structure that, while not universal, is certainly more removed from particulars than any of its other functions. Indeed, from many of these experiences, there comes the universal. It is precisely by "reading into" (*intus legere*) these individual experiences the intellect comes to know the universal, and indeed it could be imagined that some universals could only be known

[164] *De Trinitate*, q. 6, a. 1, qc. 2, corpus.
[165] *De Trinitate*, q. 6, a. 1, qc. 2, corpus.
[166] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 18. In *In duodecim libros Metaphysicorum Aristotelis expositio*, the Latin reads: "ita ex multis experimentis apprehensis fit universalis acceptio de omnibus similibus".

experientially. For instance, the notions of *love* and *justice* would be difficult, if not impossible, to obtain without direct experience. The highest possible *experimenta* would seem to be those related to the act of being.

The cogitative's highest descending function

After mentioning how the intellect can abstract the universal from the phantasm, Fabro notes that "having been able to know the particular mode of *being* of the individuals, while in the first movement [the intellect] had compared the individuals with the formal *ratio* and had extracted the logical *ratio*, it can now compare the formal *ratio* with reference to the act of being, found in individuals"[167]. It would seem the highest function of the cogitative power in its descending function, that is, from the intellect to particulars, is to apply the notions of *ens* and the transcendentals to the concrete existing substances.

The metaphysical method Fabro proposes is the *resolutio*, as mentioned earlier. While it is beyond the scope of our work to delve deeply into this topic, particularly as Fabro does not have a systematic study of the *resolutio*, it would stand to reason the highest descending function would relate to the highest object of the intellect, and then apply it in the particular[168].

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[167] FABRO, *NMP*, 135.

[168] For an excellent overview, see VILLAGRASA, «La *resolutio*», 35–66. In particular, 37: "Ebbene, Fabro non ha svolto uno studio sistematico sulla *resolutio*, e nelle sue grandi opere metafisiche non cita il testo dove San Tommaso si occupa del metodo della metafisica: il commento *In Boethio de Trinitate* (*BDT*), q. 6 a. 1". See MITCHELL, *Being and Participation*, 685-686, where he notes that Alain Contat provides an excellent summary of the steps for this *resolutio* to *esse*: "La soluzione di questo problema dipende dallo statuto epistemologico specifico che il Fabro assegna al procedimento attraverso il quale si risale all'essere intensivo in quanto fondamento ultimo dell'ente. Le procedure conoscitive che l'Aquinate ha ereditato dallo Stagirita sono necessarie, ma non sufficienti, per accedere a tale *esse ut actus*. Tramite l'esperienza esterna ed il giudizio di esistenza, si tocca l'esistente; grazie all'astrazione, si oggettiva la quiddità o essenza; per mezzo della dimostrazione, si afferma l'esistenza di Dio: così si arriva successivamente all'ente comune, alle categorie, al primo motore. Questo itinerario inventivo deve però essere accompagnato, ad ogni grado, da una corrispondente «riduzione» o «risoluzione», che fa apparire l'attualità propria al livello epistemologico sul quale ci si trova, e che evidenzia per contrasto la potenzialità correlativa a tale attualità. Si tratta dunque di una analisi ontologica, la cui caratteristica propria è di gerarchizzare le istanze che

Theoretical context of the metaphysics of Cornelio Fabro

Next, we must consider the *theoretical context* of Cornelio Fabro's thought, that is, the foundations of his metaphysics, so this background can be considered and borne in mind for the integration we propose, namely, into a Thomistic *Weltanschauung*.

Intellectual trajectory – General considerations

The intellectual trajectory of Fabro's life has been considered elsewhere and with great clarity[169]. It will be sufficient here to note simply that, while Fabro's principal academic foci were metaphysics in the context of participation, immanence, and existentialism, nonetheless his works on perception provide a great deal of insight considering his metaphysical vision of the world.

The intellectual trajectory of Fabro's life can be split into three major directions, as he himself pointed out:

> It seems to me that there are three fundamental directions of research . . . to which I have tried to remain faithful throughout the course of almost a half-century: 1st the deepening of the *metaphysical* notion of participation; 2nd the determination of the *metaphysical* essence of the modern principle of immanence as 'radical atheism'; and

ne risultano. In questo modo, si dà una *resolutio* iniziale dell'ente nella nozione comune di *esse commune* (a), complementare a la cosa che lo ha; poi si pratica una *resolutio* metodologica dell'ente, dentro la sua quadripartizione, nel binomio aristotelico di οὐσία e di ἐνέργεια, letto da Fabro come coppia di *quidditas* ed *esse in actu* (b); e finalmente si giunge all'ultima *resolutio* metafisica dell'ente nella doppia opposizione fra *Esse subsistens* ed *esse inhaerens*, quest'ultimo essendo l'*esse ut actus* limitato dalla *essentia*, vale a dire l'essere intensivo (c). In questo modo l'intelletto opera «un passaggio da atto ad atto», grazie al quale egli raggiunge, ogni volta, qualcosa di reale, anzi realissimo, che supera l'ordine della forma, e non è pertanto l'oggetto di un concetto quidditativo, bensì di una «nozione» che contempla una perfezione raggiunta attraverso un giudizio": A. CONTAT, «Le figure della differenza ontologica nel tomismo del Novecento (prima parte)», *Alpha Omega* XI/1 (2008), 119-120.

[169] See, for instance, A. ACERBI – L. ROMERA, «La antropología de Cornelio Fabro», *Anuario Filosófico* XXXIX/1 (2006), 101-131; J. J. SANGUINETI, «Ermeneutica dell'apprendimento percettivo», *Euntes Docete* 50/1–2 (1997), 195–212; also, my introduction to C. FABRO, *The Phenomenology of Perception,* IVE Press, Chillum, 2021, XIII-XXIII, which deals specifically with Fabro's gnoseological vision as contained within *FP* and *PP.* Here I follow, sometimes verbatim, the indications I laid out there.

> 3rd the recovery of the classical-Christian realism in Kierkegaard's existential *metaphysics* against the atheist anthropology of modern immanence[170].

It would be an exaggeration to say that gnoseology or epistemology was a major focus of Fabro's study: the Italian thinker's primary concern was metaphysics and its engagement with modern thought. Indeed, it was precisely his concern for metaphysics that brought him to consider epistemology, as one author noted:

> The metaphysical positions expressed in the two celebrated volumes of 1939 and of 1961 on *Partecipazione* (in particular) and *Causalità*, find their gnoseological support in those on *Fenomenologia della Percezione* (1941) and on the relationships between *Percezione e Pensiero* (also from 1941). Father Fabro has dedicated the most prominent part of his theoretical life to Thomistic thought, compared in an ever more extensive form with the modern cognitive theories, even on the strictly epistemological terrain[171].

Hence, while the two large volumes *FP* and *PP*, with over 1,000 pages combined, contain the bulk of Fabro's overt epistemological teachings, the more explicitly metaphysical works cannot be ignored, because these provide the context for his studies and also give the occasional insight into his epistemological positions. This crucial claim is at the foundation of all the further developments that will be made in this thesis, i.e.: *Fabro's understanding of the vis cogitativa in particular and his epistemological vision in general cannot be separated from their metaphysical foundations without deforming them.* Again, this general vision of the importance of participation finds its foundation in the Pseudo-Dionysian *Weltanschauung*, adopted by Aquinas, of an integrated harmony of beings with an *exitus – reditus* structure.

From this follows another crucial consequence: Fontana notes that "[i]f the appearance of *La nozione metafisica di partecipazione* had marked the beginning of the richest period of Father Fabro's life in terms of production of works and of greatest intellectual development, then the publication of *Partecipazione e causalità* marked its

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[170] See Elvio Fontana's introduction in C. FABRO, *Selected Works Cornelio Fabro, Volume 3: Selected Articles on Atheism and Freedom*, IVE Press, Chillum 2020, XI.

[171] A. RIGOBELLO, *L'Osservatore Romano*, 6 maggio 1995, 3. Cited in R. GOGLIA, *Cornelio Fabro: Profilo Biografico Cronologico Tematico da inediti, note di archivio, testimonianze*, ED.IVI, Segni 2010, 56. The book is now available in English as R. GOGLIA, *Cornelio Fabro: A Biographical, Chronological, and Thematic Profile from Unpublished Documents, Archived Notes, and Testimonials*, IVEPress, Chillum, MD 2023.

zenith"[172]. In other words, the period from 1939, with the first publication of *NMP*, to 1960, with the publication of *PC*, is the time of the greatest developments in Fabro's metaphysical thought, and therefore it is to be expected that if a development takes place in his epistemological thought, it will run parallel within this time frame[173].

The chronology of these publications reveals precisely this. The first editions of both *FP* and *PPi* were published around the same time as the first edition of *NMP*; the second editions of both came out around the same time as the definitive versions of *NMP* and *PC*. If Fabro were to have realized during his years of study and research on metaphysics that his epistemological vision needed correction, those corrections could easily have been incorporated into the second editions.

Yet, it seems that Fabro found his early vision sufficient, since in the preface to the second edition of *PPi*, he notes what has changed[174]:

> With respect to the first edition, this new edition has been updated in the critical part, and shortened in the expositive part by a whole chapter (ch. VI). The properly theoretical part has been kept in its original presentation, even if today—after the dissolution of idealism by the Marxist-existentialist problem—those principles have been brought back more decisively to the 'foundation.'

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[172] FONTANA, *A Brief Introduction*, 18.

[173] Fabro himself confirms this as he writes that *PC* is a work that "matured through twenty years of new investigations and reflections, confronted the foundation of the new Thomistic horizon of participation with instances of the depths of modern and contemporary thought." From "Appunti di un itinerario," in *Essere e Libertà. Studi in onore di Cornelio Fabro*, Maggioli Editore, Rimini 1984, 20: "Maturata in un ventennio di nuove ricerche e riflessioni confrontava il fondamento del nuovo orizzonte tomistico nella partecipazione con le istanze di fondo del pensiero moderno e contemporaneo". English translation in FONTANA, *A Brief Introduction,* 19.

[174] FABRO, *PP*, 13: "Rispetto alla I ed. (*Percezione e Pensiero*, Vita e Pensiero, Milano, 1941), questa nuova edizione è stata aggiornata nella parte critica ed abbreviata in quella espositiva di un intero capitolo (c. VII). La parte propriamente teoretica è stata conservata nella sua esposizione originale, anche se oggi – dopo la dissoluzione dell'idealismo ad opera della problematica marxistico-esistenzialistica – quei princìpi sono stati riportati più decisamente al «fondamento». Cfr. C. FABRO, *Dall'essere all'esistente*, Brescia, Morcelliana, 1957. - È stato aggiunto l'indice delle materie".

The omitted chapter was dedicated to problems that were of interest to contemporary Italian thinkers[175]. What is of interest to us, though, is the last point: the theoretical exposition has been left as it was; Fabro did not find things to correct, but rather the problem of being and knowledge of being has been brought back to the foundation, back to something even more originary.

Intellectual trajectory – Specific considerations

Regarding the topic of perception in general, some, for instance Rossi and Amorim Vidal, note that Fabro's treatment of perception is centered in *FP* and *PP*, although further developments, including regarding the *vis cogitativa*, appear in *Dall'essere all'esistente*[176]. Amorim ignores this last volume, which Rossi kindly claims is not a failing on the part of Amorim's work. However, in this work, we will consider not only the articles that are prior to *FP* and *PPi*, which contain elements of interest to us, but also works that are posterior to *DEAE*, such as *SAKR*.

Having conducted a historic-critical study of the cogitative power as part of the preparation for this thesis, it should be noted Fabro's position regarding the power remains essentially unchanged throughout his intellectual trajectory. Likewise, it is also important to note Fabro frequently "recycles", often verbatim, material from earlier works. An analysis reveals many repeated texts, which is important especially for those who wish to criticize aspects of Fabro's thought[177].

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[175] The *Opere Complete* version of Fabro's text reproduces the chapter in an appendix; it deals with abstract thought and lived thought, considering the writings of Bernardino Varisco, Armando Carlini, and Francesco Orestano.

[176] Commenting on Amorim's thesis, Rossi notes: "A lo largo de la tesis los volúmenes fabrianos más citados son *Fenomenologia della Percezione*, *Percezione e Pensiero* y *L'anima*. *Dall'Essere all'esistente*, que consideramos esencial (el mismo Fabro lo hace notar) para un acabado estudio de la gnoseología fabriana, no fue utilizado. No se trata de una falta en el trabajo de Vidal, ya que su intención era centrarse en la percepción, pero sí muestra los diferentes objetivos de su tesis y la nuestra" (ROSSI, *La fundación teórica*, 16).

[177] For instance, *PP* 33-60 reproduces practically verbatim the whole of «IRPS». In our sections of interest, we can identify: *PP*, 164-166, reproduces verbatim «PPS», 49-52; *PP*, 175-178, reproduces verbatim «PPS», 52-55, with a slight addition; *PP*, 179-182, reproduces «PPS», 56-59, almost verbatim, with slight modifications; *PP*, 182-184, reproduces, in Italian translation, «KPP», 350-352; *PP*, 216-223, reproduces, in Italian translation, «KPP», 341-349;

Key concepts of Cornelio Fabro's metaphysical analysis of perception

In order to provide a framework for our interdisciplinary study of perception, we must examine the key concepts that are at play in the Fabrian understanding. These notions are: epistemological participation, perception and sensation, *forma* and *intentio*, the *sensibili per accidens*, the *experimentum*, and the *collatio*.

Epistemological participation

A recurrent theme throughout the whole of the Fabrian corpus is the notion of participation[178]. Following Aquinas, Fabro insists that the *vis cogitativa* participates in the intellectual nature of the soul. It is the highest of the sensitive powers, and can be said to touch the intellect. Indeed, in humans the whole of sensation is said to be directed towards the intellect, and consequently the whole sensitive nature of man is elevated beyond the sensitive nature of irrational animals. Although the exterior organs might be similar, the ordering to the intellect raises them to a higher level. This is frequently reinforced by the Italian philosopher's recourse to the axiom of Pseudo-Dioynisus, offered by Aquinas: the highest of the lower touches the lowest of the

PP, 223-229, reproduces, in Italian translation, «KPP», 355-362 (the later pages, i.e., 227 and 228, includes additional citations and more details - taken from footnote 48 in «KPP», 365 - but the text remains essentially the same); *PP*, 237-238, reproduces «PISM», 451-453 (the remainder of the section (238-245) concerns metaphysical developments made by Aristotle); *PP*, 245-258, reproduces «PISM», 430-447; *PP*, 258-261, reproduces «PISM», 447-451; *PP*, 261-265, reproduces «PISM», 454-459; *PP*, 265-267, reproduces «PISM», 459-461. The section's conclusion (267-268) differs from «PISM», 461-462, but offers no significant new insights. Thus, in the approximately 160 pages of *PP* which are intimately concerned with the *vis cogitativa*, only 60 pages contain "new" material. Likewise, in the 1955 *L'Anima*, the only notable examination of the cogitative power is a verbatim repetition of the s.v. "cogitative" entry from *Enciclopedia Cattolica*, with the sole difference that function four now reads "making possible the application of the major premise of the prudential syllogism to the concrete". Likewise, within the text regarding the cogitative power, the s.v. "estimative" entry from *Enciclopedia Cattolica* is reproduced verbatim in footnote 32 on the same page.

[178] For Fabro's explanation of the notion of participation see the article C. FABRO, «The Intensive Hermeneutics of Thomistic Philosophy: The Notion of Participation» in *Selected Works of Cornelio Fabro: Vol. 1*: 65-101.

higher[179]. Again, this thought finds its foundation in Psuedo-Dioynsius' worldview and the importance of participation, and O'Rourke reminds us that this interaction goes in both directions: "Each level of being, at its highest peak, participates after a manner in its superior, possessing in rudimentary form and incipient mode the perfection of the level which surpasses it. Conversely, it transmits to its immediate inferior something of its own perfection and excellence"[180]. A synthetic presentation of Fabro's understanding can be found in *NMP*, where he gives the general outline of this participation:

> From a psychological point of view we know that the intellect and sensation are faculties of a single substance, to which they are co-present as instruments of a single principal agent; for this reason the intellect can, in its knowledge, join with or put itself in continuity with sensation and, effecting a radical conversion, attain to reality in its concrete mode of being. In this conversion the intellect can move in various directions: it can join the "intentio intellecta" (the universal) to the "intentio imaginata," prepared for the intellect by the cogitative power in concert with the imagination and memory; at this point the intellect can reach the existing individual, which can be present in experience, and know how in fact men exist and how this man, Socrates, exists, and that man, Callias; here we have a movement of the intellect from above to below, from the universal from which it departs to the particular in which it terminates. But the intellect can keep moving: after this movement from above to below, and thanks to it, it can now direct itself from below to above, but in a way quite different than in the first movement. Having been able to know the particular mode of *being* of the individuals, while in the first movement it had compared the individuals with the formal *ratio* and had extracted the logical *ratio*, it can now compare the formal *ratio* with reference to the act of being, found in individuals[181].

Here, we see the presence of both *exitus* and *reditus*: the intellect reaches out by means of the cogitative, but the cogitative also returns to the intellect. The process of perception is not only a bottom-up process, but also a top-down one. Later in the book, Fabro clarifies the specific place of the cogitative power in this pyramid of epistemological participation, based on the ontological participation of the faculties in the one soul:

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[179] For a partial listing of citations of "*Supremum infimi ordinis attingit infimum supremi*", with references to find the remainder, see O'ROURKE, *Pseudo-Dionysius and the Metaphysics of Aquinas*, 264, n. 205.

[180] O'ROURKE, *Pseudo-Dionysius and the Metaphysics of Aquinas*, 264.

[181] FABRO, *NMP*, 135.

> There is one sense in particular among all the others that participates directly in the intellect: the most perfect internal sense, the *cogitative power*, also called the material intellect. In Thomistic psychology the cogitative sense is the true "*longa manus*" of our intelligence. By it is made possible the final preparation of the "phantasm" for abstraction, the knowledge of the concrete singular in reflection and thus the perception of "*per accidens*" sensibles, and finally the formation of the minor premise in prudential judgment. In short, it is the faculty of the real interests of lived life, great and small, and all because "*the cogitative power is that which is highest in the sensitive part of man, and, thus, sense in some way comes in contact with the intellective part so that it participates in something of that which is lowest in the intellective part, namely, discursive reason. This is in accord with the rule of Dionysius*. . . . For this reason, also, the cogitative power is called the particular reason, as is clear from the Commentator. This exists only *in man*" (*De Veritate*, q. 14, a. 1 ad 9; cf. *In II De Anima*, lect. 15, nn. 396-397)[182].

Hence, the cogitative power is a border or frontier faculty: as the highest and most perfect of the senses, it is in contact with contingent material reality, yet, at the same time, it is in contact with the intellect and participates directly in it. Any criticism of Fabro's position (e.g., Muszalski's comparison with the position of Rahner) must, to be balanced, bear in mind the importance of this foundation, in particular, that of a moderate realism that is irreconcilable with transcendental Thomism. We will discuss shortly what is the particular object of the cogitative power, but first we must establish the distinction between sensation and perception to provide a foundation.

However, the question remains: what is the precise mechanism by which the cogitative power is in contact with the intellect and will? In what way do the higher powers, namely, the intellect and will, touch or use the cogitative power? In other words, how is the cogitative used by the higher powers so that we can say it "takes part" of those faculties? In what way does this participation take place, since the intellect and will are spiritual powers, while the cogitative power is bound to a material organ? In ST I-II, q. 16, a. 1, Aquinas discusses "use", and notes "the use of a thing implies the application of that thing to an operation". As examples, he cites the application of the intellect to understanding, and the eye to seeing: in other words, we use the intellect to understand by applying it to that task, and we use the eye to see by applying it to the operation of sight. Aquinas then contends it is "the will which moves

[182] FABRO, *NMP*, 281. Note that the term "material intellect" appears to be from Averroes' commentary on Aristotle's *De Anima*.

the soul's powers to their acts, and this is to apply them to operation"[183]. Since lower animals have neither intellect nor will, there is technically not use in them; "animals by means of their members do something from natural instinct"[184]. From the intellect proceeds "command", which, as Aquinas notes in ST I-II, q. 17, a. 1, is "an act of reason presupposing, however, an act of the will". This command "moves (the power) to the execution of the act"[185]. The movement of the will is necessary in that it is the first mover, and hence "it follows that the very fact that the reason moves by commanding, is due to the power of the will". Irrational animals, contends Aquinas in ST I-II, q. 17, a. 2, lack command just as they lack use.

In this vein, we should also remember the various faculties and powers are as power parts of the one soul. Hence, from this essential metaphysical unity there flows a unity in operation. As Aquinas phrases it in ST I-II, q. 17, a. 5, ad 2: "Just as each of the members of the body works not for itself alone but for the whole body; thus it is for the whole body that the eye sees; so is it with the powers of the soul. For the intellect understands, not for itself alone, but for all the powers; and the will wills not only for itself, but for all the powers too".

Hence, if the intellect commands and the will uses the cogitative power, it means they direct the cogitative power to apply its operations (which, as we will see later, are the *collatio* and the formation of the *experimentum*) to some *intentio* in a particular way. An analogical case could be made for memory: while it pertains to memory to store intentions and recall them, the will can have the memory recall things at a particular time and in a particular way and can direct the other faculties to encourage the formation of memories (e.g., by reading and re-reading a text so as to memorize it). Since humans have these spiritual faculties, they are not bound merely to instinct, as are the lower animals; rather, humans can direct their powers towards certain objects and away from others.

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[183] ST I-II, q. 16, a. 1.
[184] ST I-II, q. 16, a. 2.
[185] ST I-II, q. 17, a. 1.

Another way to consider the dominion of the spiritual faculties over the cogitative power is to examine the sort of control they can exercise over it. We would expect this process to be imperfectly under the dominion of the intellect and the will. As proof of this, we can see that some intentions might be so strongly associated with an object that changing the intention is practically impossible (for instance, in the case of phobias, wherein an object, even a harmless one, produces a very negative reaction). For instance, in the case of arachnophobia, even a drawing of a spider or scorpion is sufficient to produce an extreme fear reaction in the patient[186]. Clearly the intellect would judge the object to be harmless, and yet the cogitative power refuses to accept this. The process of overcoming the phobia (and hence the erroneous *intentio* connected with spiders and the like) involves several therapeutic interventions, such as exposure therapy, which can re-form the cogitative's judgment.

In this sense, the intellect and will have indirectly commanded and used the cogitative by directing the subject to a place and a process where that *intentio* can be adjusted. They cannot modify the cogitative's *intentio* directly, but rather indirectly, through settings, occasions, and methods. In this, we can also see how the higher faculties could provide the opportunities for the *experimentum* to develop, as we will see later. Likewise, what the intellect and will can do to command and use the cogitative power is the crux of the question of attention that will also be addressed later. Here, we will limit ourselves to saying that attention is both a top-down and a bottom-up phenomenon: the spiritual faculties can direct the powers to certain tasks or objects (top-down), but sometimes stimuli can intervene and over-ride those directions (bottom-up). As a result, the process of perception is neither purely passive nor purely active; humans have spiritual facilities which can direct the lower ones, but there are also salient phenomena that can engage the lower senses so much as to resist the promptings of the intellect and the will.

[186] I thank my student, Megan Lovar, for being forthcoming with her irrational fear of scorpions and thus providing this critical insight.

Perception and sensation

The definition of perception, and its distinction from sensation, will be a recurrent theme in this thesis. Perhaps the clearest delineation regarding Fabro's understanding of the notions of sensation and perception and the distinction between the two is found in a 1952 article in the *Enciclopedia Cattolica*, v. IX, s.v. "percezione". The first section of the text reads as follows:

> It [i.e., perception] generally indicates the awareness of something in both external and internal experience and becomes almost synonymous with "consciousness": p[erception] thus involves a certain "judgment of existence" about the presence of an object in the field of consciousness. In a more rigorous sense, p[erception] can be referred to as the complete act of concrete knowledge in that it operates the synthesis of the sensory and intellectual spheres.
>
> In pure sensation we have the presence of quality (colors, sounds . . . figures, movements) but with sensation alone we do not yet have the actual "meaning" of the quality, which is obtained only as a function of the "whole" learned by the subject, which has its ultimate expression in the "concept". But even the pure concept, just as the man who has to abstract it from experience can have it, cannot by itself tap into the manifold and mutable concrete and therefore only pronounces on the formal value of the contents of experience without grasping its reality of existence. P[erception] is the synthetic act of consciousness that implements and contains both movements in the dynamic unity of sensory consciousness and intellectual consciousness.

In other words, we could consider sensation as the reception of sense data without meaning; it is the reception of a form (understood in the broadest sense as a *per se* or common sensible), but not of an intention. Rather, perception is the "synthesis of the sensory and intellectual spheres": not only do qualities enter via the sensory organs, but these also receive, from a higher power, a value or importance. In other words, in sensation a phantasm is produced, but one that as of yet has no meaning or, perhaps better said, the meaning has not been grasped. There is an intention, value, or meaning in potency, but to become aware of this requires the intervention of the higher sense faculties. In humans, the intellect can also intervene, shedding light on the particulars through its grasp of universals.

On the one hand, this requires, at some point, the perceiver must judge that the object "exists", or, as Fabro will term it later, the perceiver must be "persuaded" of its existence. This incorporates an intellectual aspect, since although the concept is formed

from past experience, without the reference to the "here-and-now" of perception, the concept remains simply the expression of a formal value without reference to the real. On the other hand, it is precisely this "value" that leads Fabro to comment the *per accidens* sensibles "form the adequate object of human perception"[187]. What these *per accidens* sensibles are will be seen shortly; however, to further clarify these distinctions between sensation and perception, we must first examine the notions of *forma* and *intentio*.

Forma *and* intentio

An important section entitled *"Forma" and "Intentio" in perception* in *PP* addresses this distinction which is fundamental for the Fabrian understanding of perception. We can follow the logic that Fabro uses here, especially to underline the importance of the Arab philosophers for Aquinas' position.

The section begins with a consideration of the interior senses responsible for the apprehension of the various sensibles: *per se*, common, and *per accidens.* Citing Aquinas's commentary on *De Memoria*, Fabro answers regarding the first two that "*the apprehension of the common sensibles is initiated by the external senses, but is not accomplished adequately unless by the combined elaboration of the common sense and the fantasy*"[188].

The question remains, however, for the *per accidens* sensibles, "which form the adequate object of human perception"[189]. Fabro asks whether the internal senses must be considered separately or, as claimed by Thomas Verner Moore, they can be reduced to one synthetic sense responsible for the entirety of sensorial organization[190]. While the former admits that Moore provides excellent psychological research, the data in

[187] FABRO, *PP*, 154: "i quali formano l'oggetto adeguato della percezione umana".
[188] FABRO, *PP*, 154: "*L'apprensione dei sensibili comuni s'inizia dai sensi esterni, ma non si compie in modo adeguato se non per l'elaborazione combinata del senso comune e della fantasia*". Emphasis in original.
[189] FABRO, *PP*, 154: "i quali formano l'oggetto adeguato della percezione umana".
[190] See T. V. MOORE, *Cognitive Psychology*, Philadelphia: J. B. Lippincott, 238, for this position.

fact supports the two-fold organization of sensation. Fabro's reply is given in two moments: the first, the Thomistic teaching, is a literal exposition of ST I, q. 78, a. 4; the second relies on data from psychological experiments.

Following the text from Aquinas, Fabro notes that animals must be able to carry out all the activities they need to survive. Hence, perfect animals must not only be able to seek things when they are present, but also when they are not: thus, there must be admitted a retentive faculty. However, since these sensations are received by different faculties, and reception and retention require different principles, the receptive faculty must be different from the retentive one. Furthermore, notes Aquinas, animals must also be able to seek and avoid things, not as they are pleasant or disagreeable for the senses, but rather on account of other advantages or disadvantages, that is, intentions. Hence, just as there is a faculty for reception of forms and another for their retention, there must also be for the reception and retention of intentions. For the first, there is the common sense and the imagination, and, for the second, the estimative or cogitative and the memory.

Following Aquinas, Fabro emphasizes that in the formal senses there is little difference between humans and the other animals: the physical structure of the organs is much the same, and hence the corresponding interior senses should likewise be similar. However, the difference is to be found regarding the intentional senses. Likewise, the Italian philosopher notes that Aquinas anticipates Moore's position in the replies to the objections, wherein Thomas refuses to reduce the interior senses to one.

After this exegesis, Fabro observes that the crucial point is the cogitative power, and while the functioning of the power will be left for later in this chapter, the Italian philosopher considers it fitting to consider the object of the power, namely, the intentions. The text provides a justification for the division of the powers into *formal* and *intentional*, and, given its centrality to our study, we present the text in full:

> In all his works, St. Thomas holds firmly to the distinction between the sensory contents of "*FORMA*" and "*INTENTIO*"; on it is based our distinction of the two organizations, primary and secondary. Let us say that "*forma*" is the ontologically

> *neutral* content of objects, as it is given by external qualities (the "per se sensibles"); "*intentio*" is a content of real value that is founded on the nature of the object and affects the nature of the subject: however, it is always a concrete content, that is, linked to particular objects and subjects and for this reason it can still be called in a certain way "sensible." The "*intentiones insensatae*", of which St. Thomas speaks, coincide exactly with the "*sensibiles per accidens*".

The difference between the two sensory organizations was already discussed in earlier works, with the important remark that the secondary organization is the realm of the cogitative power. Perhaps the *forma* could be referred to as a syntactic value, meaning, simply the structural value that is presented to the perceiver, and *intentio* as a semantic value, that is, the meaning or import of what was perceived. Here Fabro has laid out clearly how it is possible for the *intentio* to be sensible and yet not a sensible *per se*. As he continues his explanation, he also points out the historical origin of these distinctions:

> The introduction of the "*intentio*" into gnoseology and the distinction between "*forma*" and "*intentio*" are due to Arabic philosophy and came into Thomism from Avicenna and Averroes. Avicenna says: "The difference between apprehending forms and apprehending intentions is this, that the *form* is that which is apprehended by the interior and exterior senses at the same time. However, the exterior senses first apprehend it and then it is given to the interior senses. Thus, the sheep apprehends the form of the wolf, namely, its figure, qualities, and colors. Yet, first the exterior senses of the sheep apprehend it, and then the interior senses. However, the *intention* is that which the soul of the sensitive creature grasps when it was not first grasped by the exterior senses, such as when the sheep apprehends the intention of the wolf: that this is something that it should fear and flee from, although now the senses have not apprehended anything at all. Thus, when the powers hidden from the senses are apprehended, they are called by the proper name of intentions"[191].

The text from Avicenna presents a curious division between form and intention; we can note that the wolf not only *has* its intention, but in fact *instantiates* that intention. The Arabic philosopher has laid the groundwork for further developments, but the precise nature of intention, and how it is transmitted to the interior senses without being apprehended by the exterior senses, remain unclear. However, as Fabro continues his historical examination, it is apparent that Averroes offers more precise developments:

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[191] Fabro cites this text from AVICENNAE, *Opus egregium De Anima*, Pars I, c. 5, ed. veneta 1508 fol. 5 *ra*.

> The "*intentio*" becomes even clearer in Averroes: the Arabic notion of "intentionality" has a much more precise and realistic gnoseological meaning than that which has been restored by Brentano. The passage from "*forma*" to "*intentio*" is the passage from the phenomenal content, I do not say phenomenist, to the real content of the objects; while in the Brentanian notion intentionality is generally attributed to all the modalities of knowledge without distinction and even to the affective tendencies. The "*intentio*" is elaborated by the cogitative power and is kept by the memorative; the "*forma*" is communicated by things to the external senses, then passes into the common sense and in the imagination so that there are *five* orders of forms, like five steps by which the soul must climb to the intelligible. The "Commentator" says: "And so are the five classes, the first is the great physical body [itself]. The second is this same form in the common sense that forms the first of the spiritual order. The third step is the power of imagination and it is more spiritual. The fourth is a distinctive power (cogitative). The fifth, however, is the power of memory, and it is the most spiritual"[192].

Fabro's emphasis on the distinction between intentionality as understood by the Arabic-Thomistic tradition and as understood by Brentano (and, in that vein, the phenomenological schools that follow his lead) is important. The former is a precise notion and entails a definite content, which we could term "*intentio strictu sensu*", whereas the latter is more vague and more generalized, a simple mental directedness present in all sorts of knowledge and even in "affective tendencies": this is intention or intentionality in general. Likewise, it is clear that Aquinas did not accept *tout court* the ordering of the faculties as presented by Averroes, but instead presented the cogitative as the power closest to the intellect. Fabro then returns to summarize his conclusions after the historical clarifications:

> In general, the "*intentio*" signifies the way of being that objects have insofar as they are known, and in this respect the "*forma*" also belongs to the intentional order: indeed, the "mode" of being that the sensible has in the environment is also called "intentional," as it has been said. In the strict gnoseological meaning, the "*intentio*" stands for the concrete *meaning* that the objects have for the animal and for man, and then it refers strictly only to the contents of the *cogitativa* or *distinctiva* (and estimative) and of memory, that is, of the fourth and fifth order.

Here, Fabro indicates two different uses of the term *intentio*. In the first, more general usage, intention refers to objects as known. Hence, even the sensibles *per se* are intentional when they are known, because they exist in the knowing subject. However, the second, narrower usage, the "*intentio strictu sensu*" refers to the concrete

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[192] Fabro cites this text from AVERROIS CORDUB., *Paraphrasis in l. De Memoria et Reminiscentia*, ed. veneta 1562, t. VI, pars II, fol. 22 *ra*.

meaning of the object, and in this treatment it refers solely to the object of cogitative and memorative powers. The distinction is important for avoiding confusion; with this established, Fabro turns to summarize the section's findings, based on the second usage of intention:

> Hence, to the cogitative power pertains a proper object, which must be distinguished from both that of the lower senses and that of the intellect. Evidently, the original content that the "*intentio*" has with respect to the "*forma*" supposes a new organization that the internal elaboration imposes on the "formal" data. The organization that we are talking about does not consist only in the spatio-temporal arrangement, but also in the positioning of a fact, an object, a person in the proper environment of other facts, objects, persons . . . that pertains to them from which positioning they draw the practical interest that *hic et nunc* they have for the subject who makes this comparative examination or "*collatio*." This is the secondary organization[193].

The cogitative power is responsible for this new organization or elaboration, a process that situates an object in a field of interest. This situating is not simply a matter of space and time, but rather of the lived life, the interests and values, of the subject. It is this intention that constitutes the object of the power. The importance of this lengthy passage cannot be overstated. This language of distinction between formal and intentional internal senses, although based in the Thomistic texts, appears to be uniquely Fabrian[194]. Likewise, it is clear why Fabro would emphasize the similarities between Averroes and Aquinas, since there are similarities in their notions of intention.

With this distinction in mind, we can continue to examine what Aquinas calls the object of the cogitative power, and then a particular aspect of the cogitative's functions, namely, the formation of the *experimentum* from the association or collation of singular intentions.

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[193] FABRO, *PP*, 157-159.

[194] See BARKER, *The Cogitative Power*, 23, ftn. 81: "The precise terms *sensus formales* and *sensus intentionales* are not used by Aquinas; the earliest use I know of these actual terms is in Fabro".

Sensibili per accidens *as object of the cogitative power*

It is a benign statement to say that the objects of the cogitative power are the *sensibili per accidens*; Aquinas says as much, and frequently[195]. The challenge lies in understanding what these are. As we have seen, for Fabro, perception in the modern sense is essentially what Aquinas would consider the grasping of these *sensibili per accidens*.

First, it is important that Fabro claims that for Aquinas "*sensibilia per accidens*" and "*intentiones insensatae*" correspond exactly[196]; for the Italian philosopher, the two terms can be used interchangeably, and hence what is said of one can be said of the other. It should be noted that the term *intentiones insensatae*, as such, does not appear in the Thomistic corpus. The closest text is ST I, q. 78, a. 4, corpus, where Aquinas calls these "*intentiones, quas non percipit sensus exterior*". The term *intentiones insensatae* itself seems, rather, to come from John of Saint Thomas[197].

Secondly, for Fabro the term *sensibles per accidens* is somewhat misleading. On the one hand, the term distinguishes them clearly from the *per se* sensibles and universals. Aquinas and Fabro both maintain that the universal *qua* universal can never be an object of the senses, not even as a sensible *per accidens*. Fabro clarifies:

> The *sensibile per accidens* properly indicates an intelligible aspect precisely inasmuch as it can be seen concreted in reality, as *this* substance (the son of Diares), *this* causality

[195] See, for instance, FABRO, «PISM», 441, ftn. 1: "S. Tomaso afferma costantemente che l'apprensione dei singolari concreti è propria della Cogitativa; essi nella psicologia aristotelica sono designati come «sensibilia per accidens», vanno distinti tanto dai «sensibili per se», quanto dagli «intelligibilia per se» (gli universali)". To support his claim, Fabro cites *In II De Anima*, lect, XIII, n. 396, *In IV Sent*., Dist. 49, q. II, a. 2; *De Ver*., q. X, a. 5, e ad 2, ad 4; *In VI Ethic*, lect. 1, n. 1123; *ibid*., lect. 9, n. 1255; *Q. De Anima*, a. 20, ad 1 (secundae seriei); ST I, q. LXXXVI, a. 1, ad 2; ST II-II, q. XLVI1, a. 3 ad 3; and ibid., q, XLIV, a, 2 ad 3.

[196] See FABRO, *PP*, 158: "Le «intentiones insensatae», di cui parla S. Tommaso, coincidono esattamente con i «sensibili per accidens».

[197] Anthony J. Lisska notes that the phrase comes from "later commentators" (see A. J. LISSKA, *Thomas Aquinas on Phantasia: Rooted in But Transcending Aristotle's De Anima*, in *Thomistic Institute: Summer 2000* (2000), in https://www3.nd.edu/~maritain/jmc/ti00/lisska.htm [15-1-2025]). In a later article, he makes reference to the concept in John Poinsot (John of Saint Thomas): see A. J. LISSKA, «Deely, Aquinas, and Poinsot: How the intentionality of inner sense transcends the limits of empiricism», 2010/178 (2010), in 10.1515/semi.2010.009 [15-1-2025].

> . . . , not substance and causality as such. We understand then how the mind which makes contact with concrete reality only by means of the senses apprehends the *sensibile per accidens* by means of the senses in some way, and (as Aristotle affirms) we can say that even sense knowledge *in some way is of the universal*.[198]

"These [i.e., concrete singulars] in Aristotelian psychology are called '*sensibilia per accidens*,' and are distinct from the '*sensibilia per se*' as well as the '*intelligibilia per se*' (the universals)"[199]. However, at the same time, the *per accidens* refers only to their perception *per accidens* with respect to the other external senses; in truth, whatever is perceived *per accidens* is in fact perceived by means of the sensibles *per se*. It is through the external senses that the *sensibile per accidens* are perceived, and hence they are still in some manner sensible. As Fabro notes clearly, the *intentio* (hence the *sensibilia per accidens*) "is a content of real value that is founded on the nature of the object and affects the nature of the subject: however, it is always a concrete content, that is, linked to particular objects and subjects and for this reason it can still be called in a certain way 'sensible'"[200].

Hence *sensibilia per accidens* are indirectly sensible values or intentions. To further clarify, Fabro repeatedly emphasizes two aspects which always go hand in hand. First, the *sensibile per accidens* always refer to a concrete reality, a concrete individual *hic et nunc* that is perceived. These characteristics or features are always in the concrete singular. Secondly, these intentions or sensibles are of value or interest to the perceiving subject; they concern "lived life," and have a real value, a real meaning, for the one perceiving. Concreteness and real value or import are the hallmarks of the *sensibile per accidens*.

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[198] FABRO, «KPP», 352.

[199] FABRO, «PISM», 441, ftn. 1: "S. Tomaso afferma costantemente che l'apprensione dei singolari concreti è propria della Cogitativa; essi nella psicologia aristotelica sono designati come «sensibilia per accidens», vanno distinti tanto dai «sensibili per se», quanto dagli «intelligibilia per se» (gli universali)".

[200] FABRO, *PP*, 157-158: "«*Intentio*» è un contenuto di valore reale che si fonda sulla natura dell'oggetto ed interessa la natura del soggetto: è però sempre un contenuto concreto, legato cioè agli oggetti e soggetti particolari e per questo può esser detto in certo modo ancora «sensibile»".

These ideas are presented in several texts. For instance, "The *sensibile per accidens* properly indicates an intelligible aspect precisely inasmuch as it can be seen concreted in reality, as *this* substance (the son of Diares), *this* causality . . . , not substance and causality as such"[201]. Likewise, in the discussion regarding form and intention in *PP*, it was emphasized that the intention is a new organization of the formal contents, an elaboration imposed on the data. This organization not only concerns time and space, but also the meaning of the object for the perceiver here and now on the basis of real practical interests[202].

For this reason, Fabro contends, citing Aquinas' *De Anima* commentary: "[t]he cogitative can be called κατ΄ἐξοκήν [*par excellence*] the perceptive faculty of concrete objects: *The [cogitative power] apprehends the individual thing as existing in a common nature, and this because it is united to intellect in one and the same subject. Hence it is aware of a man as this man, and this tree as this tree*"[203].

In other words, for Fabro, the *sensibilia per accidens* are neither common nor proper sensibles: they are neither colors, nor sounds, nor shape, nor movements. Yet, neither are they universals. Rather, it could be said that *sensibilia per accidens* are sensibly instantiated universals *qua* individual, i.e., concrete exemplars of intelligible universals, or particularized intelligible aspects; they are a sort of cross between the two, the universal or intelligible in a particular, individual, concrete that can be perceived through the external senses. For instance, how does one perceive "danger" in a snake? There is no proper sensible "danger", but nor is "danger" a universal that is immediately perceived. Yet, through the sensibles that appear to the perceiver, the concrete individual "snake," present here and now, is judged to be dangerous.

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[201] FABRO, «KPP», 352.

[202] FABRO, *PP*, 159.

[203] FABRO, «PPS», 58: "La cogitativa può essèr detta la facoltà percettiva degli oggetti concreti: «Nam cogitativa apprehendit individuum ut existens sub natura communi: quod contingit ei in quantum finitur intellectivae in eodem subiecto: unde cognoscit hunc hominem prout est hic homo, et hoc lignum prout est hoc lignum»". Emphasis added. The Thomistic text is in Latin, and comes from DA bk. 2, lect. 13, n. 398.

As cited earlier, Aquinas notes that "The cogitative apprehends the individual as existing under a common nature, and this is because it is united to intellect in one and the same subject. Hence it knows this man insofar as he is this man, and this tree as it is this tree"[204]. In other words, *humanity* or *treeness*, as universals, essences, quiddities, or secondary substances, are known by the intellect. However, it is by means of the cogitative power that concrete individuals, that is, primary substances, are recognized, not only as belonging to those universal categories (i.e., this man as *a* man, this tree as *a* tree), but rather as a particular concrete (i.e., this man as *this* man, this tree as *this* tree). There is no proper or common sensible that is particular to Larry, or to Curly, or to Moe; yet they are recognized by the *sensibilia per accidens* which, as will be considered now, can be incorporated into the *experimentum* with experience. As a result, the cogitative power becomes the internal sense responsible for "lived life" and maintaining our personal identity, because it is here that our individual and concrete experiences and value judgments are structured and recognized.

Experimentum *in Aquinas and in Fabro*

Another key point of the Fabrian understanding of the *vis cogitativa* is its role in the production of the *experimentum*. In the *Commentary on the Metaphysics* Aquinas examines a particular aspect of how humans form experiences from individual intentions:

> In men the next thing above memory is experience [*Supra memoriam autem in hominibus ... proximum est experimentum*], which some animals have only to a small degree [*quod quaedam animalia non participant nisi parum*]. For an experience arises from the association of many singular [intentions] received in memory [*Experimentum enim est ex collatione plurium singularium in memoria receptorum*]. And this kind of association is proper to man, and pertains to the cogitative power, also called particular reason, which associates particular intentions just as universal reason associates universal ones. Now since animals are accustomed to pursue or avoid certain things as

[204] DA bk. 2, lect. 13, n. 398. The Latin reads: "Cogitativa apprehendit individuum ut existens sub natura communi, quod contingit ei inquantum unitur intellectivae in eodem subiecto, unde cognoscit hunc hominem prout est hic homo et hoc lignum prout est hoc lignum; aestimativa autem non apprehendit aliquod individuum secundum quod est sub natura communi, sed solum secundum quod est terminus aut principium alicuius actionis vel passionis".

> a result of many sensations and memory, they seem to share something of experience, even though it be slight. But above experience, which belongs to particular reason, men have as their chief power a universal reason by means of which they live.
>
> And just as experience is related to particular reason [in men], and customary activity to memory in animals, in a similar way art is related to universal reason. Therefore, just as the life of animals is ruled in a perfect way by memory together with activity that has become habitual through training, or in any other way whatsoever, in a similar way man is ruled perfectly by reason perfected by art[205].

What this *experimentum* corresponds to, precisely, will be examined in the following chapters. However, the most salient point to note here is that the *experimentum* is a sort of condensed experience of intentions, that is, of the *sensibile per accidens*, and this association of experiences is specifically attributed by Aquinas to the cogitative power. This passage will be further discussed in the next section regarding the *collatio*.

One particular point is worth mentioning: some Thomists, notes Fabro in «KPP», have suggested that once the mind grasps the two terms in the first principles through the *experimentum*, the intellect itself analyzes and compares them and thus of itself obtains the knowledge of the relation between them. However, such is the opinion of a Scotist, Antonio Andrea, who posits the *experimentum* as necessary only for the grasping of the terms, the cognition *incomplexa*, and not for the formation of the principles themselves, the cognition *complexa*[206]. Fabro supports rather the position of Cajetan who claims that such a position goes against Aristotle (since the *experimentum* is already a complex cognition formed of many experiences) and against reason (since there is no reason why the intellect should form that particular judgment and not another). The joining of the terms can only come from some intermediary, and it is precisely the *experimentum* (the *cognitio experimentalis complexionis terminorum*, in the words of Cajetan)[207]. The *experimentum* is not a logical intermediary, a "middle

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[205] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 15-16.

[206] FABRO, «KPP», 357. In ftn. 33, Fabro cites Andrea's text as taken from Antonius Andreas, *Quaestiones super XII libros Metaphysice,* Venetiis apud Octavianum Scotum, 1523; Lib. I, q. Va, fol. 6vb, but notes that he only found the text "in a rare copy in the Library of the Ateneo Lateranense".

[207] FABRO, «KPP», 358.

term" in a syllogism that leads to the first principles (since then the first principles would not be immediately known but rather derived), but rather a psychological intermediary, one that actually prepares the intellect to reach the conclusion which is the first principle. While in a footnote Fabro voices some concerns about Cajetan's theory, these are reserved, and it seems that Fabro finds Cajetan's explanation for the most part accurate.

The importance of the *experimentum* cannot be overstated. As mentioned earlier, by maintaining and organizing the manifold experiences of lived life, the cogitative power is responsible for shaping our individual experience of reality and the world. This is why Fabro will later state forcefully:

> [The cogitative power] could be called the capacity for apprehending concrete values of "lived life," and it would be more precise to say of the "lived body"…. It is the phase of the concrete engagement of the existential self in its incommunicable singularity according to the whole range of its instances be it with respect to its being-in-the-world as well as with respect to being-in-the-body and with the very individual being in manifold whirl of the problems of existence, of the intertwining of knowing and will, of the never-settled feelings and never satisfied reflections[208].

It is the cogitative power that is responsible for maintaining this personal experiential identity of the subject. Without the cogitative power, there would be no experience of self[209].

The collatio *of the cogitative power*

The term *collatio* admits of various uses in the Thomistic corpus: in general, it refers to a "collection", a "placing together, a comparison", or even a "participation"; Deferrari ascribes the second meaning, "a placing together, a comparison", to Aquinas' use of the term with respect to the cogitative power[210]. Indeed, in a text from *De Veritate* Aquinas says explicitly: "The mind has contact with singulars through the

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[208] FABRO, *Essere nel corpo*, Unpublished Course Notes from 1979-80 class at the Università di Perugia, 113.

[209] An interesting analogy could be proposed between the *experimentum*, as a collection of associated intentions, and AI, which relies on the association of large amounts of data under the guidance of the human intellect much as human train animals.

[210] R. J. DEFERRARI, *A Lexicon of Saint Thomas Aquinas*, Catholic University of America Press 1948, s.v. *collatio*, citing ST I, q. 78, a. 4.

mediation of particular reason, a power of the sensitive part, which joins and divides individual intentions [*componens et dividens intentiones individuales*], which is also known as the cogitative power"[211]. There are two important references to this function in the Thomistic corpus: ST I, q. 78, a. 4, corpus, and the aforementioned text from the *Commentary on the Metaphysics*, Bk. 1, lib. 1, n. 15.

The first text reads:

> Now, we must observe that as to sensible forms there is no difference between man and other animals; for they are similarly immuted by the extrinsic sensible. But there is a difference as to the above intentions: for other animals perceive these intentions only by some natural instinct, while man perceives them by means of collation of ideas. Therefore the power by which in other animals is called the natural estimative, in man is called the *cogitative*, which by some sort of collation discovers these intentions. Wherefore it is also called the *particular reason*, to which medical men assign a certain particular organ, namely, the middle part of the head: for it compares individual intentions, just as the intellectual reason compares universal intentions[212].

Here Aquinas offers an analogy to explain the collative function of the cogitative power: the cogitative compares individual intentions as the intellect compares universal intentions. This same analogy is presented in the *Commentary on the Metaphysics* text: "An experience arises from the association of many singular [intentions] received in memory. And this kind of association is proper to man, and pertains to the cogitative power, also called particular reason, which associates particular intentions just as universal reason associates universal ones"[213]. Despite the varying translations, the Latin is always *per collationem*. Furthermore, this passage ends with yet another comparison: "Just as experience is related to particular reason [in men], and customary activity to memory in animals, in a similar way art is related to universal reason. Therefore, just as the life of animals is ruled in a perfect way by memory together with activity that has become habitual through training, or in any

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[211] *De Veritate*, q. 10, a. 5, corpus: "Et sic singularibus se immiscet mediante ratione particulari, quae est potentia quaedam sensitivae partis componens et dividens intentiones individuales quae alio nomine dicitur cogitativa, et habet determinatum organum in corpore, scilicet mediam cellulam capitis". I have modified the text slightly from aquinas.cc, since the term "likenesses" is not present in the Latin.

[212] ST I, q. 78, a. 4. Aquinas.cc has "coalition" rather than "collation" in the first instance.

[213] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 15.

other way whatsoever, in a similar way man is ruled perfectly by reason perfected by art"[214].

What does Aquinas mean by using these analogies? Regarding the first, that the intellect compares and associates universal intentions, we can conclude the intellect associates meanings and values of objects, but only as universally considered. We can think, for instance, of how universal values are established: "Sin is bad", and then a whole number of concepts can be associated to this universal "evilness": murder, slavery, theft, and so many other sins, in the abstraction or universal consideration, are associated to evil in general. The cogitative power, on the other hand, relates and associates particular intentions: a person can be associated with their voice, our last interaction with them, the first time we met them, and so many other intentions. In other words, the cogitative power is responsible for linking and associating these intentions, but always related to the particular and to the concrete.

In this way, the meaning of the analogy offered at the end of the passage from the *Commentary on the Metaphysics* becomes clearer. Again, the analogy is as follows: "Just as experience is related to particular reason [in men], and customary activity to memory in animals, in a similar way art is related to universal reason. Therefore, just as the life of animals is ruled in a perfect way by memory together with activity that has become habitual through training, or in any other way whatsoever, in a similar way man is ruled perfectly by reason perfected by art. Some men, however, are ruled by reason without art; but this rule is imperfect". As will be considered later, Aquinas' use of the terms *habit* and *custom* regarding irrational animals is nuanced, but, setting aside these particularities, here we have three two-fold comparisons: as experience is to particular reason in man, and customary activity to memory in animals (understood as associative conditioning, filial imprinting, mimicry, or any other sort of learning), so is art to universal reason (in man, understood implicitly). Experience is the organization and coordination of particular intentions under the guidance of the cogitative power's collation; animals are bound by their instincts, but, under the direction of humans,

[214] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 16.

higher animals can be trained, which takes advantage of their instincts to give rise to new particular intentions. For instance, bears do not typically walk on two legs, but, with training by means of rewards and punishments, in the circus they walk on two legs as part of their routine. The faculties at play are both the estimative and the memory because the estimative must provide the assessment of the stimulus (bound, as it were, to the animal's nature) and the memory that stores these intentions for future use.

The third pair is between art and universal reason. If we follow the analogy, it should conclude as follows: just as experience is organized or structured by the cogitative power, and customary activity is organized or structured in the memory, so art is organized or structured by the universal reason. Yet, the second half of the analogy seems to add something distinct: "just as the life of animals is ruled in a perfect way by memory together with activity that has become habitual through training, or in any other way whatsoever, in a similar way man is ruled perfectly by reason perfected by art. Some men, however, are ruled by reason without art; but this rule is imperfect". Just as a perfect animal life requires instinctive estimation as well as habitually trained or instilled estimations, so does perfect human life require reason perfected by art. Art is not necessary *per se*, but rather only for a perfect human life. One can live without art, but this life is imperfect. What is this art that is necessary for a perfect human life? In ST I-II, q. 57, a. 3, Aquinas defines art as "the right reason about certain works to be made [*ars nihil aliud est quam ratio recta aliquorum operum faciendorum*]".

What Aquinas means here is explained further on in the commentary. Following Aristotle, Aquinas notes:

> He says first, then, that in men experience is caused by memory. This is the way in which it is caused: from several memories of a single thing a man acquires experience about some matter, and by means of this experience he is able to act easily and correctly. Therefore, because experience provides us with the ability to act easily and correctly, it seems to be almost the same as science and art. For they are alike inasmuch as in either case from many instances a single view of a thing is obtained. But they differ inasmuch as universals are grasped by art and singular things by experience[215].

[215] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 17.

This point is repeated in the text that follows, but with the addition of how the *experimentum* leads to the universal:

> Furthermore, the way in which art arises from experience is the same as the way spoken of above in which experience arises from memory. Just as one experiential cognition comes from many memories of a thing, so does one universal judgment about all similar things come from the apprehension of many experiences. Hence art has this more than does experience, because experience is concerned only with singulars while art is concerned with universals[216].

In other words, from many *experimenta* there can be induction to a universal knowledge since there is, in the manifold of *experimenta*, an intelligible in potency; this universal knowledge concerning practical matters is called *art.* Hence, a person might have practical experience but not know the universal reasons behind their experiences, or even have the universal knowledge without the *experimentum*. Aquinas notes that, since both art and experience deal with particulars, and hence there is no difference "in the way they act", "nevertheless they differ in the effectiveness of their action. For men of experience act more effectively than those who have the universal knowledge of an art but lack experience"[217]. However, Aquinas later notes that "those who know the cause and reason why a thing is so are more knowing and wiser than those who merely know that it is so but do not know why. Now men of experience know that something is so but do not know the reason, whereas men who have an art not only know that something is so but also know its cause and reason"[218].

To return to our earlier question, what would such a life, ruled by reason but without art, look like? Aquinas offers a similar example concerning a physician:

> Hence, since art has to do with universals and experience with singulars, if anyone has the theoretical knowledge of an art but lacks experience, he will be perfect insofar as he knows the universal, but since he does not know the singular (since he lacks experience), he will very often make mistakes in healing. For healing belongs to the realm of the singular rather than to that of the universal, because it belongs to the former *per se* and to the latter accidentally[219].

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[216] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 18.
[217] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 20.
[218] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 24.
[219] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 24.

Art concerns the practical order of things to be done, but with knowledge of the universal. A person who lives by reason but without art would know the universal theoretical or abstract principles, but without the ability to apply universal knowledge to particular cases. This would perhaps be the case, for instance, of a brilliant theoretical particle physicist who is incapable of simple practical tasks.

Could there be a person who lives without art, using only what the cogitative provides? Aquinas indicates that this is a possibility: such a one would have experience and might even perform tasks rapidly and correctly, since such is the consequence of experience, but would not have knowledge of the universal. As a result, Aquinas notes two practical consequences that follow. First, those with only practical knowledge cannot answer objections against their art: "For in a dispute the one who has an art is able to meet the objections raised against that art, but one who has only experience cannot do this"[220]. Secondly, the one with only experience cannot teach:

> But men who have experience alone cannot teach; since they do not know the causes, they cannot cause knowledge in someone else. And if they do teach others the things that they know by experience, these things are not learned after the manner of scientific knowledge, but after that of opinion or belief[221].

Fabrian insights regarding the *vis cogitativa*

Having reviewed the vast Fabrian corpus, a text from «PPS» offers a very synthetic presentation of the Fabrian understanding of the cogitative power:

> In Thomistic psychology it is on account of the function of the cogitative power that the sensory synthesis is brought about; [this power] collects, founds, and organizes the data of current and past experience and can judge of all sensibles and in particular the common ones and the *per accidens* ones, for which the external senses and not even the common sense are entirely sufficient (*De Veritate*, q. 1, art. 2). In short, the function of the cogitative marks the apex of infrarational knowledge in man; it provides the intellect with the schemes, so to speak, [that are the] most updated regarding the actual conditions of reality (phantasmata), from which the intellect abstracts the universal and by means of which it can be joined in reflection with concrete reality, to which the schemes refer, and objectify in this the content of the universal[222].

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[220] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 23.
[221] *Commentary on Aristotle's Metaphysics*, bk. 1, lect. 1, n. 29.
[222] FABRO, «PPS», 55.

Based on other texts from Fabro, we can propose a list of ten functions of the *vis cogitativa* that are important for understanding its role. The first four functions, found even in Fabro's earliest works and repeated throughout his corpus, are the following, and find explicit support in the Thomistic texts:

1) "It is the cogitative, which through its act of 'collatio' among individual objects, elaborates the 'phantasma', with the help of the imagination and memory"[223]; texts cited include *SCG* II, c. 60, 73, 80, 81, *ST* I q, 78, a 4, *Q. De Anima* a. 13, and *De Veritate* q. 1, a. 11.

2) "By [means of] the 'cogitative' the singular substance and the '*sensibili per accidens*' … are perceived. Properly speaking, only an intelligible content can be called 'sensibile per accidens': particular sensible contents can be called *sensibili per accidens* with respect to the other senses, only 'secundum quid', not 'simpliciter', because in truth they are of the sensibles *per se*"[224]: texts cited include *Comm. in lib. II De Anima*, lect. 13, n. 396 and 395, and *In VI Ethic.,* lect. 1. Elsewhere, Fabro affirms that for Aquinas the apprehension of concrete singulars is properly the task of the cogitative power and adds the note: "These [i.e., concrete singulars] in Aristotelian psychology are called '*sensibilia per accidens*,' and are distinct from the '*sensibilia per se*' as well as the '*intelligibilia per se*' (the universals)"[225]. The phantasm is not simply the *sensibilia per accidens*, since it incorporates the *sensibilia per se* in act as well as the *intelligibilia per se* in potency.

[223] FABRO, «PPS», 53: "È la cogitativa, che per il suo atto della «collatio» fra gli oggetti individuali, elabora, con il concorso dell'immaginazione e della memoria il «phantasma»".

[224] FABRO, «PPS», 53-54.

[225] FABRO, «PISM», 441, ftn. 1. To support his claim, Fabro cites *In II De Anima*, lect, XIII, n. 396, *In IV Sent*., Dist. 49, q. II, a. 2; *De Ver*., q. X, a. 5, e ad 2, ad 4; *In VI Ethic*, lect. 1, n. 1123; *ibid*., lect. 9, n. 1255; *Q. De Anima*, a. 20, ad 1 (secundae seriei); ST I, q. LXXXVI, a. 1, ad 2; ST II-II, q. XLVI1, a. 3 ad 3; and ibid., q, XLIV, a, 2 ad 3.

3) "By means of the 'cogitative power', the intellect, in reflection, can be informed not only of the «*an est*», but also of the «*quid est*» of the singular"[226]: texts cited include *Q. De Anima*, a. 20, ad 1, and Cajetan's *In I.am*, q. 86, a. 1.

4) "It follows that it is only through the cogitative power that the intellect disposes of things concretely and exercises the prudential syllogisms. . . . In the prudential judgment the universal major premise is given by the intellect, the minor particular premise by the cogitative. . . And in a certain way the cogitative can be called the 'sense of prudence'"[227]: texts cited include *De Veritate*, q. 10, a. 5 corpus, ad 1, and ad 4, and *ST* II-II, q. 47, a. 3, ad 3.

Hence, the cogitative elaborates the phantasm through *collatio*, perceives the singular substance and the *sensibili per accidens*, informs the intellect about both the «*an est*» and «*quid est*» of the singular, and is how the intellect disposes of things concretely and which provides the minor particular premise in a prudential judgment.

At other points in his corpus, Fabro considers additional functions of the cogitative power. For instance, in *BIT*, in a list of the functions of the power, we read: "b) to judge the common and the proper sensibles . . . [and] d) to perceive in reality those fundamental ontological notions (reality, substance, cause, relation, and the other predicaments) that the intellect then grasps in the universality of abstraction"[228]. Likewise, mention was made earlier of the importance of the cogitative power in the formation of the *experimentum*. In other texts, Fabro also makes mention of the cogitative power's role in incorporating both individual and social aspects into behavior and judgment, as well as providing the persuasion of existence.

These functions of the *vis cogitativa* can be found in the Thomistic texts, many explicitly, but others only implicitly; nevertheless, we will focus on and dedicate particular study to those that Fabro emphasizes or examines with a particular insight. For these, it is important to recall Fabro's insistence regarding the substantial unity of

[226] FABRO, «PPS», 54.
[227] FABRO, «PPS», 54-55.
[228] FABRO, *BIT*, 35-37.

the human being and the participation of the lower senses in the cogitative power and of the cogitative power in the intellect. As Fabro succinctly notes, "the «phantasm» (the secondary sensorial organization) is prepared by the internal senses under the direction of the «cogitative power»", and "the cogitative power can organize experience in light of the understanding, inasmuch as it is in immediate *contact* with the intellect, and *participates* in *some way* of the same"[229]. In other words, there is both an ascending function of the cogitative power, when it presents the phantasm to the intellect, and a descending function, wherein it applies the intellect's knowledge to the concrete. Or, to express the same notion using the Neo-platonic foundations proffered by Pseudo-Dionysius, we have an *exitus* as the intellect reaches out through the cogitative power, and a *reditus* as information returns to the intellect via that same power. We could think of the cogitative as *passive* when it functions in the *reditus* moment, since it is supposed to receive information, while the cogitative is *active* in the *exitus*, because it is used as a tool by the intellect. Hence, for our purposes, we will divide the list of functions of the cogitative power that we have given according to the *exitus – reditus* structure, that is, according to passive and active functions, wherein the power serves as a bridge to the intellect or as a tool in the hand of the intellect. Admittedly, this division is imperfect, since some of the functions, such as the elaboration of the phantasm and the formation of the *experimentum*, will be done by the cogitative but in light of the intellect and prior experience as a constant back-and-forth.

Hence our list of functions of the cogitative power, as per Fabro, is as follows:

A. Those powers that involve the *reditus*, that is, the movement from external things to the cogitative to the intellect; the cogitative
    1. elaborates the phantasm through the *collatio*;
    2. perceives the singular substance and the *sensibili per accidens*;
    3. judges the common and the proper sensibles;

[229] FABRO, «PPS», 51-52. Emphasis in the original.

4. perceives in reality those fundamental ontological notions (reality, substance, cause, relation, and the other predicaments) that the intellect then grasps in the universality of abstraction; it should be noted that these are *sensibili per accidens*, inasmuch as the cogitative grasps them, not as substance *qua* substance, but rather as *this* substance; and
5. helps form the *experimentum* as the organization of experience.

B. Those powers that involve the *exitus*, that is, the movement from the intellect to the cogitative to external things; the cogitative
    1. informs the intellect about both the «*an est*» and «*quid est*» of the singular;
    2. is how the intellect disposes of things concretely and which provides the minor particular premise in a prudential judgment;
    3. provides the persuasion of existence, particularly important for the natural act of faith.
    4. incorporates both individual and social aspects into behavior and judgment; and
    5. explains errors in perception by means of the schema.

Lastly, as per Aquinas, even though these functions might be diverse, they always refer to one object: the *sensibili per accidens*. If the objects were different, there would be a need for more faculties in addition to the *vis cogitativa*.

The reditus *functions of the cogitative power*

As mentioned above, we can consider five functions of the cogitative power as representing the *reditus* of information through the senses to the cogitative and ultimately to the intellect.

The cogitative power elaborates the phantasm through the collatio

A first function of the cogitative power is that it elaborates the phantasm by means of the *collatio*. This fact is affirmed in ST I, q. 78, a. 4, corpus, “Therefore the power by which in other animals is called the natural estimative, in man is called

the *cogitative*, which by some sort of collation discovers these intentions [*in homine dicitur cogitativa, quae per collationem quandam huiusmodi intentiones adinvenit*]", as well as the *Q. De Anima*, q. 13: "Hence in animals other than man a natural estimative power is directed to this end, but in man there is a cogitative power which collates particular intentions".

The precise meaning of this *collatio*, discussed briefly above, will be considered again later, in Chapter Four, but here it will suffice to say that, for Aquinas, "the soul, in order to understand, needs the powers which prepare the phantasms so as to make them actually intelligible (namely, the cogitative power and the memory)"[230]. By phantasm is meant, as Aquinas states, "the likeness of an individual thing"[231]. The phantasm is not simply the collection of forms, nor just the *sensibili per accidens*, but rather a reflection of the object in the world intentionally present in the mind of the perceiver in which the *sensibili per accidens* are actualized. Objects exist in the world with their own matter. However, in knowing an object, the knower cannot have the object present in their mind with its own matter; otherwise, to know a rock would mean to have that rock in the knower's head. Rather, the external senses receive information immaterially, i.e. without the concrete matter of the object being present in the organ (however, the information is still bound to material organs in the knowing subject). This information, organized and elaborated by the internal senses, is called the phantasm.

The cogitative power perceives the singular substance and the sensibili per accidens

A second function of the cogitative power that Fabro gives is the perception of the singular substance as well as of the *sensibili per accidens*. This function can be found explicitly in the texts of Aquinas, and clearly stated in his *De Anima* commentary. There we read:

> Therefore, what is not known by any proper sense is apprehended by the intellect, if it be a universal; still, not everything that can be apprehended by intellect in a sensed

[230] SCG II, 80.
[231] ST I, q. 84, a. 7, ad 2.

> thing can be called a "sense-object accidentally," but only what is intellectually apprehended immediately at the presence of the sensed reality. Thus, as soon as I see anyone talking or moving himself, I apprehend his life through my intellect, whence I can say that I see him live.
>
> But if this is apprehended in an individual, as when, seeing a colored thing, I perceive this particular man or this beast, then in fact the apprehension arises in a man through the cogitative power, which is also called "particular reason," because it collects the intentions of individuals, just as universal reason collects the accounts of universals[232].

Hence, it is the cogitative power that grasps these particular, singular, or individual intentions. Mention was made earlier of the intentions that the cogitative grasps, but here Aquinas gives a clear application of how the process takes place. In seeing a particular and familiar shape, smelling a certain odor, or hearing a familiar voice, there is nothing in those raw sensations that indicates the value of what is sensed for me. Rather, it is through the cogitative that these sensations are perceived according to their value for the subject: as a friend, a foe, a relative.

Shortly following this text, Aquinas continues with a brief explanation of the difference between the human cogitative power and the estimative power of irrational animals.

> Nevertheless, this capacity is in the sensitive part of the soul, for the sensitive power at its highest—in man, in whom the sense power is joined to the intellectual—has a certain share in the intellectual power. But the irrational animals' apprehension of individualized intentions occurs through a natural estimation, in virtue of which a sheep recognizes its offspring by sight, or hearing, or something of that sort.
>
> Nonetheless the cogitative power and the estimative power are oriented in different ways relative to this. The cogitative apprehends the individual as existing under a common nature, and this is because it is united to intellect in one and the same subject. Hence it knows this man insofar as he is this man, and this tree as it is this tree; but the estimative power does not apprehend any individual insofar as it is under a common nature, but only insofar as it is the terminus or principle of some action or passion. For example, a sheep knows this lamb, not insofar as it is this lamb, but insofar as it is able to be suckled by it, and this grass insofar as it is its food. Hence, those individual things to which its action or passion does not extend it does not apprehend at all by its natural estimation. For natural estimation is given to animals so that they might be ordered in their own proper seeking and avoiding actions and passions[233].

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[232] DA bk. 2, lect. 13, n. 396.
[233] DA bk. 2, lect. 13, n. 397-398.

Here Aquinas raises several important points: first, the animal's estimative power is closely linked with its instincts. Whether this represents the ultimate limit for all animals will be seen later, but it is important that Aquinas contends that if an individual object is not the object of action or passion, either by instinct or associated by conditioning, the animal simply does not apprehend it at all.

Likewise, Aquinas notes that it is the cogitative power that is responsible for apprehending "the individual as existing under a common nature, and this is because it is united to intellect in one and the same subject". What this means has been introduced earlier and will be examined further in detail later. For now, however, it suffices for us to note the connection between the cogitative power and the intellect, and that through the cogitative power concrete individuals are grasped as being of a particular nature. Likewise, it should be highlighted that this is always individual *qua* individual, and not the individual nature *qua* intelligible; in other words, this process is before the intellect's *conversio ad phantasmata*. Lastly, if we bear in mind what Fabro has said about the cogitative grasping "the lived values", instead of considering simply "man" or "tree" as individuals, we could consider objects such as "stop sign" or "guitar" which would entail a certain value or intention for the subject, and which could vary from subject to subject, based precisely on that lived experience.

The cogitative power judges the common, proper, and accidental sensibles

In *BIT* and the later *IST*, Fabro claims that the cogitative power judges both the common sensibles as well as the proper sensibles[234]. In support of this claim, Fabro cites *De Veritate*, q. 1, a. 11. However, a close examination of the text reveals this is not actually stated by Aquinas. The text considers "whether there is falsity in sense"; after distinguishing two manners in which truth or falsity can be found in sense, the Thomistic text offers the following analysis:

> If sense is considered in its relation to things, however, then there are truth and falsity in sense in the manner in which these are in the intellect. For truth and falsity are found

[234] FABRO, *BIT*, 36: "b) guidicare dei sensibili comuni e dei sensibili propri (*De Ver*., q. I, a. 11)". The text is repeated verbatim in *IST*, 64, with the same citation from Aquinas.

> primarily and principally in the judgment of the intellect as it associates and dissociates, and in the formation of quiddities, only in their relation to the judgment following upon this formation. Hence, truth and falsity are properly said to be in sense inasmuch as it judges about sensible objects, but inasmuch as it apprehends a sensible object, there is not properly truth or falsity, except in the relation of this apprehension to the judgment, in so far as a judgment of this or that sort naturally follows upon a particular apprehension. The judgment of sense about certain things—for example, proper sensibles—takes place spontaneously. About other things, however, it takes place by means of a certain comparison, made in man by the cogitative power, a sense power, whose place in animals is taken by a spontaneous estimation. This sensitive power judges about common sensibles and accidental sensibles[235].

Here, Aquinas is explicit that the cogitative power judges, not the proper sensibles, but rather the common and accidental sensibles. Indeed, "the judgement of sense about … proper sensibles" takes place spontaneously; by judgment, we mean the conformity or lack thereof between the perceiver object and the phantasm. Furthermore, notes Aquinas, "the spontaneous action of a thing always takes place in one way, unless by accident it is impeded intrinsically by some defect or extrinsically by some impediment. Consequently, the judgment of sense about proper sensibles is always true unless there is an impediment in the organ or in the medium".

Could the Fabrian contention simply be a hasty or erroneous reading of the Thomistic text? This is a possibility; however, it is also possible that what Fabro has in mind is how the cogitative power judges the concrete values of even the primary sensibles. In other words, the color red might convey danger and the color yellow caution. In assigning values to these primary sensibles, the cogitative is effectively judging them, not in regards to the accuracy of the perception, but rather as to their value. In this way, judgment would be said analogously. Lastly, in chapter three, we will consider a particular text in the *Commentary on the Metaphysics*, wherein Aquinas discusses the possibility of errors in perceptual judgment because of distance[236].

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[235] *De Ver.*, q. 1, a. 11, corpus.

[236] In the *De Veritate* text, Aquinas notes that only organic impediments or an impediment in the medium produce erroneous judgments of the proper sensibles. However, the *Metaphysics* commentary will introduce distance as a factor, although because the object cannot adequately affect the medium. See also ST I, q. 17, a. 2.

The cogitative power perceives fundamental ontological notions (reality, substance, cause, relation, and the other predicaments) in reality

Fabro points out in «PISM», that, unlike its counterpart in irrational animals, the task of the cogitative power is, "little by little and by means of particular reasonings, to grasp the characteristic contents of material concreteness, and first among them those of the individual and concrete substance"[237]. Such a principle can be found, at least in seminal form, in Aquinas' *De Anima* commentary:

> Therefore, what is not known by any proper sense is apprehended by the intellect, if it be a universal; still, not everything that can be apprehended by intellect in a sensed thing can be called a "sense-object accidentally," but only what is intellectually apprehended immediately at the presence of the sensed reality. Thus, as soon as I see anyone talking or moving himself, I apprehend his life through my intellect, whence I can say that I see him live. But if this is apprehended in an individual, as when, seeing a colored thing, I perceive this particular man or this beast, then in fact the apprehension arises in a man through the cogitative power, which is also called "particular reason," because it collects the intentions of individuals, just as universal reason collects the accounts of universals[238].

Again, Aquinas emphasizes the cogitative power grasps individual intentions, whereas the intellect grasps universals. Hence, anything that has an individual value or importance is grasped by the cogitative power. For this reason, and emphasizing the importance of the *vis cogitativa*, Fabro forcefully states the role of said power in perceiving the fundamental ontological notions as they are present in reality, e.g., *this* substance, not formally *qua* substance, but rather as *this* substance:

> Let us say then: if the human intellect, as such, is not apprehensive of singulars, neither is sense, as sense; however, the noblest part of human sensitivity, the "cogitative," which, through the union and participation it has in reason, can grasp the singular both according to the "intentio singularitatis" and according to the "intentio substantialitatis," and this formally insofar as it is *human* sensitivity, and not as pure sensitivity. Man therefore grasps the singulars in their real concreteness with the cogitative power, and not with the intellect, which is properly the universalizing faculty of the concrete contents discovered by the cogitative ("*Intentiones individuales decem praedicamentorum*" according to the effective expression of Averroes). But since the cogitative power, just as (indeed more than) all sensibility in action remains present to the intellect, the latter in reflection can become aware of the content of the phantasm of the cogitative and "arguing" from the individual signs present therein, gather some

[237] FABRO, «PISM», 440.
[238] DA bk. 2, lect. 13, n. 396.

> information about the existence and nature of the concrete singular, existing "*hic et nunc*"[239].

Fabro's argument is that the cogitative grasps individual intentions and, since we know this power is also responsible for presenting the phantasm to the intellect for abstraction, it would stand to reason that cogitative also grasps the fundamental ontological notions, or the *individual intentions of the ten predicaments* (substance, relation, quantity, quality, and so forth). Clearly, the cogitative does not grasp these intentions in their universality, but rather in their instantiations in individuals.

The cogitative power helps form the experimentum *as the organization of experience*

We have chosen to place this function under the *reditus* functions of the cogitative, but Fabro's words must be kept in mind: "the cogitative power can organize experience in light of the understanding, inasmuch as it is in immediate *contact* with the intellect, and *participates* in *some way* of the same"[240]. In other words, while the cogitative receives and organizes experience, this is the result of a constant back-and-forth with the intellect. Likewise, it is not only the cogitative power alone that is at work. In ST I-II, q. 51, a. 3, Aquinas asks whether one act is sufficient to form a habit. In the *corpus* he explains:

> But in the apprehensive powers, we must observe that there are two passive principles: one is the *potential* intellect itself; the other is the intellect which Aristotle (*De Anima* iii, text. 20) calls *passive*, and is the *particular reason*, that is the cogitative power, with memory and imagination… But with regard to the lower apprehensive powers, the same acts need to be repeated many times for anything to be firmly impressed on the memory. And so the Philosopher says (*De Memor. et Remin*. 1) that *meditation strengthens memory*. Bodily habits, however, can be caused by one act, if the active principle is of great power: sometimes, for instance, a strong dose of medicine restores health at once.

What is of interest for us here is, first, Aquinas sometimes uses the term "particular reason" in a broad sense, to refer to the cogitative together with the memory and imagination. Secondly, there is an emphasis on repetition, meaning that, while one

[239] FABRO, «PISM», 440-442.
[240] FABRO, «PPS», 51-52. Emphasis in the original.

act might suffice for a habit, in general the act must be repeated time and again to form the habit.

In «KPP», Fabro begins with a discussion of the context of Aristotle's theory regarding the formation of the universal. Plato had proposed the Universals as subsistent ideas, an idea that Aristotle thoroughly rejects. However, the Stagirite still needs to account for the origin of the knowledge of universal principles: in *Analytics*, Bk. 11, c. 19, he opposes the idea that such principles are innate and concludes that they must derive from "a preceding knowledge but of a different order"[241]. Noting that in nature, the simplest animals are bound to the present, while more advanced animals can recall and incorporate past experiences in a way so as almost to seem rational, in man the process goes even further. As Fabro summarizes:

> Just as sensations often repeated lead to memory, so many memories lead to a new cognition called ἐμπειρία (*experimentum*); it is in this ἐμπειρία that the principle of art and science in man finds its origin. There are therefore these phases in the way leading to the 'thought'—αἴσθησις, μνήμη, ἐμπειρία; the 'thought' in act is not always preceded by another 'thought' in act, but sometimes by a form of 'thought' in process, that is, by a real becoming or a gradual taking possession of the object by the mind under the impulse of sensible cognition[242].

It is from these many experiences, often scattered and diverse, that become integrated into the *experimentum*, which is retained in the mind "as a 'unit' . . . an indifferent content that is uniform and indivisible with respect to the multiplicity and variety of sensations. It is this unit, impressed on the mind, that is in some way the universal, the beginning of knowledge"[243]. It is, as it were, a sort of super- or mega-*collatio*. What is interesting is that this knowing could seemingly be accessed without the intellect: e.g, the drunk who maintains they can drive home while intoxicated might insist that "the car knows the way home", yet, in reality, the car knows nothing. Rather,

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[241] FABRO, «KPP», 344. The citation given by Fabro in ftn. 9 is "*Metaph*. A, 1, 980a, 26b, 28; cfr. *Ethic. Nic*. A, 7, 1098b, 3; Z, 3, 1139b, 28-31", which seems incorrect. The corresponding text in *PP* has no citation given.

[242] FABRO, «KPP», 345.

[243] FABRO, «KPP», 345.

it is the summation of experiences that enable the person to return home driving even while intoxicated to the point of lacking the use of reason.

Fabro notes that Thomism does not see the processes of induction and abstraction as opposed, but, on the contrary, as entirely compatible. The terms were considered equivalent, or even that the first was the preparatory phase of abstraction: "Both theories, that of induction and that of abstraction, describe the same process, the progressive acquisition of the intelligible, but from different points of view"[244].

> To [the cogitative power] above all we owe our perceiving movement as of an airplane or of a bird, to becoming aware that in such a complex of sounds there is a melody or a symphony, or a church aria; it is by it that a complex of words presents itself as a political speech, or a lecture or a sermon, as also that certain bodily movements or gestures have a meaning of sorrow or joy, supplication or command, hope or despair; by it, there also emerges, in the rhythmic enchantment of the movements, the joyous dance that satisfies the gaze, and the gesture of an affectionate caress descends to the heart.
>
> In other words, the cogitative power performs the distinction, and the respective syntheses that the position of the distinction entails, between *Gestalt* and *structure*, which is not only a distinction between degrees of complexity in organization, but this very complexity in its formation and in its appearing is a sign that the objects belong to profoundly different planes of life and knowledge, even though they are not dissimiliar, nor perceptively isolated[245].

The *experimentum* of Aristotle and Aquinas is, for Fabro, what both Jean Piaget and Pierre Janet has studied and expounded in their respective fields. In his works, Fabro engages effectively in a dialogue with these empirical psychologists, a task we will undertake ourselves later in this thesis. For instance, after citing a text by Piaget, the Italian philosopher writes: "It seems to us that one could not more explicitly describe the isagogic function that the Thomistic cogitative power has with regard to the intellect. To follow Piaget's reconstruction will replace, at least in the essential traits, the phenomenological description that classical Aristotelianism was not able to give"[246]. Likewise, at the conclusion of the section concerning Piaget, Fabro notes, "[f]or now, let us stop at the general principles, recognizing in the assimilation-

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[244] FABRO, «KPP», 348.
[245] FABRO, *FP*, 394-396.
[246] FABRO, *PP*, 210.

accommodation of the schemes, as understood by Piaget, a conception which—despite the evident empirical intemperances—coincides with the nature and functions of the Thomistic cogitative power, in a more evident form than other understandings mentioned so far"[247]. For Janet, Fabro likewise gives an affirmative assessment: "Less complex than that of Piaget, Janet's theory contains no less clearly an appropriate phenomenological description of the function of the cogitative power"[248].

Piaget proposed the formation of schema in child development. Although Fabro finds the division of the six stages of child development to be too rigid (and acknowledges that Piaget admits the same), he finds the theory of schema to be accurate. In Piaget's vision, the developing child forms schema as they assimilate more information and experiences, and these, in turn, are modified and developed and serve as the foundation for future schema. In this, the schema have a "history," a past, and development from the ground up, that is, from the most basic sensations and experiences to more complex ones.

Fabro finds in Piaget's theory the perfect balance: against Gestalttheorie, the past plays an important role; against Associationism, the development goes beyond what is simply received, since the child must develop and synthesize and form new schema; against Kant, the schema begin at the bottom, with the child's most basic experiences, and then are formed in an ascending manner. The unifying aspect of Piaget's theory is the *solidarity* between all the different manifestations of life as it develops in the child.

The discussion of Janet's work is brief, but it is of interest. Hence, we reproduce the majority of the text:

> Janet, too, holds, and even more explicitly than Piaget, that "before thought, there was action," and before action "in act," the tendencies to action. Psychic life begins with the exercise of "reflexes," which, despite the poverty of their content and the simplicity of their function, are now "structures," well-defined "forms of action." Moreover, it is not true that the reflexes operate as rigid pieces, mounted once and for all; rather they soon adapt, become complicated in total "forms of behavior" that can embrace several

[247] FABRO, *PP*, 213.
[248] FABRO, *PP*, 214.

> reflexes. At the beginning, the baby does nothing but suck as soon as it is in contact with the mother's breast. Later, the act of sucking becomes more complex: as soon as the lips touch the breast, he will make movements with the head; at the mere sight of the mother, he will move his arms: the global perceptive scheme can thus be put into action by only one of the stimuli that are part of the total act. From simple reflex, sucking has become a schematic behavior. Schematic behaviors, having become spontaneous, open up new possibilities to the subject and in some cases also allow a certain "regulation" in the face of a new situation. The process that goes from the excitation of the global scheme, starting from a stimulus, to the consummation of the act is called by Janet the "*erection phase*" to which the "suspensive states" belong. From the genetic point of view, the "perceptual objects" are nothing other than the things of the external world, since they are capable of determining a characteristic behavior in the subject: it is this behavior, considered in its subjective aspect, that is to be called the perceptive scheme. . . .

For Janet, as well as for the other interlocutors in this thesis, humans start with reflexes but can adjust and modify them, so much so that these lead to new forms of behavior. These schematic behaviors can be considered as *experimenta*, which start as basic reflexes or responses but are gradually modified with time and further experience.

The exitus *functions of the cogitative power*

As mentioned above, we can consider five functions of the cogitative power as representing the *exitus* of commands or movement from the intellect, through the cogitative, to the world.

*The cogitative power informs the intellect about both the «*an est*» and «*quid est*» of the singular*

Aquinas insists that the human intellect cannot know singulars directly. This teaching appears, for instance, in the *Q. de Anima*, q. 20. In ad 1, Thomas notes that "In this life our intellect knows through species derived from things, which species are abstracted from matter and from all material conditions; and therefore it cannot know singulars, the principle of which is matter, but only universals". The reasoning is linear: the intellect knows through the species which comes from individual, concrete things but with all material conditions left aside. However, since the singular is material, the intellect cannot know it directly.

Nevertheless, it is by means of the cogitative power that the intellect can know about the singular. As Aquinas writes in the corpus of *De Veritate*, q. 10, a. 5, after noting that matter is the principle of individuation, and that our intellect cannot know singulars directly:

> Nevertheless, the mind has contact with singulars by reason of something else in so far as it has continuity with the sensitive powers which have particulars for their object. This conjunction comes about in two ways. First, the movement of the sensitive part terminates in the mind, as happens in the movement that goes from things to the soul. Thus, the mind knows singulars through a certain kind of reflection, as when the mind, in knowing its object, which is some universal nature, returns to knowledge of its own act, then to the species which is the principle of its act, and, finally, to the phantasm from which it has abstracted the species. In this way, it attains to some knowledge about singulars. In the other way, this conjunction is found in the movement from the soul to things, which begins from the mind and moves forward to the sensitive part in the mind's control over the lower powers. Here, the mind has contact with singulars through the mediation of particular reason, a power of the sensitive part, which joins and divides individual intentional likenesses, which is also known as the cogitative power, and which has a definite bodily organ, a cell in the center of the head. The mind's universal judgment about things to be done cannot be applied to a particular act except through the mediation of some intermediate power which perceives the singular. In this way, there is framed a kind of syllogism whose major premise is universal, the decision of the mind, and whose minor premise is singular, a perception of the particular reason.

In other words, the intellect can indirectly know the singulars in two ways. First, the intellect can know the singular by reflecting on its own act of knowing the universal, and back-tracking to the species which produced the act, and the phantasm that was the source for the species. In this way, the intellect has, per Aquinas, "some knowledge" of the individual, since the phantasm is not exactly the same as the concrete existing singular. Second, the cogitative power mediates the application of the universal to the singular, that is, it applies the intellect's judgment or knowledge to the concrete singular, an application which the intellect cannot do directly because of the nature of its object.

Fabro notes, then, that not only is the cogitative power responsible for offering the intellect the knowledge of the *quid est* of the singular, i.e., what the singular object is, but also the knowledge *an est*, that it is, and this because the cogitative power is in contact with the material singular. The *an est* comes because the cogitative power

perceives the intentions or values; one of these intentions is whether or not an object is real and exists. Such a judgment does not belong to the external senses, since these simply relay sensory information: they apprehend, but do not judge, as was seen in the earlier section. Likewise, the intellect knows directly universals, and not particulars; to know a particular singular in its present conditions, including that it exists and how it does so, pertains to the cogitative power.

The cogitative power provides the minor particular premise in a prudential judgment

The cogitative power provides the minor premise in the syllogism, and this is stated explicitly by Saint Thomas. One of the clearest expressions of this is found in *De Veritate*, q. 10, a. 5. There, Aquinas states that:

> The mind has contact with singulars through the mediation of particular reason, a power of the sensitive part, which joins and divides individual intentional likenesses, which is also known as the cogitative power, and which has a definite bodily organ, a cell in the center of the head. The mind's universal judgment about things to be done cannot be applied to a particular act except through the mediation of some intermediate power which perceives the singular. In this way, there is framed a kind of syllogism whose major premise is universal, the decision of the mind, and whose minor premise is singular, a perception of the particular reason[249].

In the reply to fourth objection, Aquinas adds, "The intellect or reason knows universally the end to which it directs the act of the concupiscible power and the act of the irascible power when it commands them. It applies this universal knowledge to singulars through the mediation of the cogitative power, as has been said". Universal knowledge is applied to singular cases by means of the cogitative power.

Hence, while the principle at heart is not new, Fabro's formulations offer a rather concrete context for understanding the process of moral reasoning. For instance, in *BIT* we read: "So, in the formation of the moral judgment, *synderesis* offers the universal premise (*non est furandum*) and the *ratio particularis*, or cogitative power,

[249] See also ST I, q. 86, a. 1, ad 2: "The choice of a particular thing to be done is as the conclusion of a syllogism formed by the practical intellect, as is said in *Ethic*. vii, 3. But a singular proposition cannot be directly concluded from a universal proposition, except through the medium of a singular proposition. Therefore the universal principle of the practical intellect does not move save through the medium of the particular apprehension of the sensitive part, as is said in *De Anima* iii, 11".

presenting the concrete situation about which it must decide (*hoc est furtum*): the conclusion is the business of 'conscience,' since it must apply the universal precept to the particular case"[250].

There is the question of how, exactly, a sensible power can provide a judgment. Indeed, Aquinas explains, in ST I, q. 81, a. 3, that the cogitative power can provide this *particular reasoning* only under the guidance of the intellect. There, he writes:

> Wherefore in man the sensitive appetite is naturally moved by this particular reason. But this same particular reason is naturally guided and moved according to the universal reason: wherefore in syllogistic matters particular conclusions are drawn from universal propositions. Therefore it is clear that the universal reason directs the sensitive appetite, which is divided into concupiscible and irascible; and this appetite obeys it. But because to draw particular conclusions from universal principles is not the work of the intellect, as such, but of the reason: hence it is that the irascible and concupiscible are said to obey the reason rather than to obey the intellect. Anyone can experience this in himself: for by applying certain universal considerations, anger or fear or the like may be modified or excited.

In other words, when we speak of the particular reason or the particular judgment of the cogitative power, it must be understood as an *exitus* of the intellect, because it no longer concerns universal principles, but rather particular circumstances, actions, and movements, here and now. Likewise, as Aquinas also makes clear, because the application is done by a sensitive power, it can be modified or diminished by the passions.

We find insights regarding this moral action of the cogitative power in the 1997 Ares edition of *IST*. After the 1983 edition, Fabro continued to think and write. Although he died in 1995, he left notes regarding various texts that he would have included in a later edition of the book. Hence, in the 1997 Ares edition, these texts were added. Among the add-ons, Fabro proposes his own list of sixty-nine Thomistic theses in order to supplement or even replace those proposed by Pope Saint Pius X[251]. Of these new theses, several make explicit reference to the cogitative power.

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[250] FABRO, *BIT*, 44.

[251] FABRO, *IST*, 146, includes an editor's footnote noting that these particular theses were published in «Metafisica e antropologia. L'ordine morale in 19 tesi», *Studi Cattolici*, 276 (1984): 83-87.

Thesis fifty-three emphasizes that the fundamental operation of the spirit is two-fold: the intellect has as its goal the knowledge of truth and the will has the choice of the existential end. However, in order to achieve these ends, all of the lower operations must be coordinated. Fabro indicates that:

> Aquinas attributes this double unifying function of knowing and willing in the sensible sphere to the *cogitative* power, inasmuch as it 'participates' in the intellect (even if it, like *esse* of the *ens*, has since been forgotten by his school; the two forgotten aspects belong to and unify each other). Just as *esse* gives the ultimate concreteness of *ens* in the real sphere, so the *cogitative* touches intellectual life in its ultimate dynamic determination[252].

In this same direction, thesis fifty-seven speaks of the natural law as a participation in the eternal law. This is simply the position of Aquinas. However, here too the emphasis on the cogitative power is notable. After indicating that the cogitative power passes on the impressions of lived life to the practical reason, where the determination of ends and means takes place, Fabro re-iterates the importance of the cogitative power: "In the sphere of character education (and moral and cultural formation in general), it can be seen that the *cogitative power*, that point of insertion or contact between the sensitive and intellective spheres, enjoys the primacy of place regarding the preparations for such formation, including the subject's dispositions, inclinations, and innate and acquired tendencies"[253].

Following this, theses sixty, sixty-one, and sixty-two all concern the natural law, with an emphasis on the role of the cogitative power in applying the universal principles to the here and now of life. In thesis sixty, after noting that the eternal law orders the whole universe, and the natural law is a participation of it, Fabro indicates the sensible sphere is coordinated by the cognitive power. In thesis sixty-one, he reiterates the same point, but from the point of view of the practical intellect: the practical intellect acts in the union of the indications of the eternal law (by means of the natural law) with the lower influences given by the cogitative power, which is also enlightened by reason.

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[252] FABRO, *IST*, 147.
[253] FABRO, *IST*, 148.

The last thesis for consideration, sixty-two, presents the same notion yet again, but with a clarifying image that reveals the intimate connection between the eternal and natural laws and the cogitative power:

> The three-fold relation between the eternal law, the natural law, and the cogitative power could therefore be represented by the figure of three concentric circles, of which the external circle is the eternal law, the middle indicates natural law (with its first moral precepts or principles), and the innermost circle signifies the *cogitative power*, which depends on and is directly subordinated to the natural law and indirectly (yet nevertheless in a profound way) to the eternal law[254].

Not only are these perhaps the last words of Fabro regarding the cogitative power, but they also reveal an increasing concern for the ramifications and importance of the power in daily life. Earlier Fabro had emphasized the nature of the *vis cogitativa* as the faculty of lived life, but here we find a notable emphasis on the role of the power in education, formation, and in particular regarding morality; all of this is advanced in terms of the application to the concrete.

The cogitative power incorporates both individual and social aspects into behavior and judgment

The importance of behaviors, that is, of actions, with regards to perception points to a possible point of engagement with both ecological psychology and enactivist neuroscience. This will be considered in detail later in this thesis, but Fabro emphasizes the link between the perceptive schemas erected by the cogitative power and the resultant behaviors. Another aspect which Fabro emphasizes and which provides another point of engagement with the social sciences is the social dimension of the schemas:

> One part, which, according to Janet, it is not possible to do away with in pre-intellectual organization, comes from *social organization*, that is, from that form of external behavior to which life must be subject from beginning to end. . . . The original contribution of Janet's theory lies in this "social placing" of the perceptive schemes, which due to the fact that they are a product of action, cannot but be influenced by the environment in which it takes place and only can take place[255].

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[254] FABRO, *IST*, 149.
[255] FABRO, *PP*, 213, 214.

In a later section, Fabro considers the role of the emotions in perception. These, too, impact the subject by means of the cogitative power: "By the fact that the cogitative power, as the faculty of practical interests, is responsible for the perceptive construction and the persuasion of existence that accompanies it, it is understood that in this persuasion the *sentiments* and emotional situations of the subject can have a considerable part"[256].

Given that the intellect is immaterial, it cannot be affected *per se* by the emotions. However, since the cogitative power is bound to a bodily organ, it can be affected by such corporeal changes, and this, in turn, can affect the process of perception and the formation of the perceptive schemas. Fabro clarifies further:

> It is well known that the sentiments, if on the one hand they arise and rely on previous intentional contents, can then on their own account evoke contents or groups of representative particular contents as they can influence psychic tension and so influence the perceptive construction in one sense rather than another. The phenomena of "exaltation" or "affective depression," insofar as they (indirectly) influence the phenomenal construction, can have a notable influence on the results of the construction itself, such as the structuring of the object and the persuasion of existence.

Here, Fabro lays emphasis on how the emotions can affect the erection of the perceptive schemes. Indeed, such a phenomenon is commonplace in the case, for instance, of patients with clinical depression. Sufferers tend to interpret events and actions negatively, and this, according to Fabro's understanding, would be the results of their biological state which in turn affects the interpretation given. Likewise, strong emotions can either aid or impede perception by means of the cogitative power:

> A strong emotional tension allows one to recognize much better and sooner a thing or a person than a passive and indifferent attitude, which can lead one to mistake them for other things and other people. So if a certain dose of sentiment can favor perception, and in general contact with reality, yet it must not go beyond the average values; that is, it must facilitate phenomenal construction, not dominate it, if it does not wish to abandon itself to hasty and unilateral constructions in which the data of representation overwhelm or simply replace those of sensation[257].

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[256] FABRO, *PP*, 377-378.
[257] FABRO, *PP*, 377-378.

The cogitative power explains errors in perception by means of the schema

In the section of *PP* regarding the immediacy of content and mediateness of functions, Fabro broaches the topic of errors in perception. Such errors are to be attributed, at least partially, to the cogitative power:

> The possibility of error or illusion is given both by the fact that the cogitative power does not always have a perfect dominion in the realization of the schemes, for reasons both extrinsic and intrinsic, and because the intellect does not always have the means to become aware of the real conformity between the intelligible and the phenomenal contents of lived experience. Thus the realization of the scheme may be inadequate and the perceptive objectivization erroneous insofar as the ontological content is clothed with what does not belong to it. It is the task of the "regional phenomenologies" to determine in particular the intrinsic and extrinsic causes that can lead, in the ambit of both primary and secondary organization, to inadequate perceptions[258].

Bearing in mind what has been said above, Fabro's point is that, precisely because the *experimentum* concerns concrete individuals and reality, there can be erroneous judgments. This does not mean the cogitative power is intrinsically flawed; rather, both extrinsic and intrinsic factors can shade its schemes. Extrinsic factors would include environmental factors like lighting, coloring, and shapes that are open to misinterpretation. For instance, we tend to judge colors that are in the shadows as darker, a fact that can be manipulated by images. Likewise, because our eyes can only focus clearly on one spot at a time, certain illusions take advantage of the fact that our peripheral vision is not so precise, and hence it seems that parts of the image in our peripheral vision are moving, even though they are static when we focus on them. Intrinsic factors that could lead to errors in perception could include bodily dispositions such as fatigue, drug use, mental illness, and more. Fabro does not go into more detail regarding these particular factors, but instead leaves the investigation of these to "regional phenomenologies [*fenomenologie regionali*]". By "regional phenomenologies", Fabro likely intends the different branches of experimental psychology, given that in the preface he speaks of the achievements of "experimental

[258] FABRO, *PP*, 341.

phenomenology" but, in context, it is clear he is referring to experimental psychology in general and Gestalt psychology in particular[259].

This erroneous judgment could even reflect the affirmation of the reality or existence of something that is not present; for instance, optical illusions can lead us to affirm there is movement in a static image, or that colors appear differently to us than they are in reality.

The cogitative power provides the persuasion of existence, particularly important for the natural act of faith.

Fabro's *Dall'essere all'esistente* is a collection of articles on various topics, ranging from the truth of being and the beginning of thought, faith and reason in Kierkegaard, and ontology and metaphysics in the latest works of Heidegger. In an article entitled «The truth of faith and the "person"», Fabro makes four brief references to the cogitative power. The references are found within the context of the natural act of faith. The section begins with Fabro pointing out that the spheres of both sense and intellect are at the foundation of faith, indeed, of all faith. This is not only inasmuch as they offer content to be affirmed, but also as they provide the foundation for the moment or act of faith, that is, the affirmation of existence. Just as without sensations there can be no affirmation of the physical world, there can be no affirmation of one's own existence without experience, and there can be no affirmation of God's existence without the affirmation of the self and the world. Fabro indicates there is no negotiation regarding this point: a worldview that begins and ends with blind faith is no explanation at all.

[259] FABRO, *PP*, 5: "La fenomenologia sperimentale contemporanea ha raccolto in tutti i campi dovizia di argomenti contro il principio dell'associazione". See also Fabro's entry in the *Enciclopedia Cattolica* s.v. «phenomenology»: Fabro notes that the term can be used in a strict sense to refer to the philosophical schools that trace their origins to Edmund Husserl: this meaning is sometimes specified as "pure phenomenology". However, the term can also be used in a broad sense to refer to the study of phenomena by any science or philosophy: in this sense, experimental psychology could be considered phenomenological.

Rather, an act of faith is the affirmation of existence as a "total synthetic function", in Fabro's words. This means the various realms previously mentioned, both interior and exterior, must concur to produce an act of faith, either in the natural realm regarding experience and history, or in the supernatural realm regarding divine revelation and salvation history. The result is an act which is at once the strongest and most precarious synthetic act. It is the strongest since it is based on reality, on the here and now. However, for this reason it is also the most precarious, because it is subject to the contingencies of the moment.

It is in this context that Fabro makes the first mention of the cogitative power. Precisely because faith consists in an affirmation of reality, and the cogitative power is the faculty that is responsible for the connection between the sensible and intelligible realms, said power enters into the act of faith. As Fabro explains:

> St. Thomas bases his natural faith on the *cogitative power* which is responsible in particular for the foundation of that *conversio ad phantasmata* which is the most profound and delicate moment of his realism. If faith and knowledge are opposed regarding their respective specific functions, they are instead complementary when it comes to the affirmation of reality, in any degree or form[260].

[260] C. FABRO, *DEAE*, Genoa-Milan, Martietti 2004, 489. As I mentioned in my «Grace and the Act of Faith: A Fabrian Model», 9/2 (2022), in 10.5840/tiw20229212 [17-1-2025], 101-102: "This is perhaps the most controversial point of Fabro's interpretation. After all, Aquinas maintains that the senses do not err regarding their proper objects. How, then, could we speak of a *natural faith* in what our senses perceive? What Fabro intends appears to be similar to what Chesterton writes rather poetically in *Orthodoxy*: 'It is idle to talk always of the alternative of reason and faith. Reason is itself a matter of faith. It is an act of faith to assert that our thoughts have any relation to reality at all. If you are merely a sceptic, you must sooner or later ask yourself the question, "Why should *anything* go right; even observation and deduction? Why should not good logic be as misleading as bad logic? They are both movements in the brain of a bewildered ape?"' Similar statements can also be found in the writings of Saint John Henry Newman. This does not mean that Fabro intends to reject the Thomistic position, but rather makes the comment in light of the overall existentialist projection of the article". Footnote 26 gives a text from Newman: "*Sermon 11: The Nature of Faith in Relation to Reason*, where, after considering the act of faith as something reasonable, he writes: 'The same remarks apply to our assumption of the fidelity of our reasoning powers; which in certain instances we implicitly believe, though we know they have deceived us in others.' In other words, we have faith that our reason corresponds to reality". See G. K. CHESTERTON, *Orthodoxy*, Dodd, Mead and Company, New York 1955, 58, as well as J. D. EARNEST, *John Henry Newman: Fifteen Sermons Preached Before the University of Oxford*, OUP Oxford, Oxford 2006, 150.

Fabro continues by indicating the characteristic of this natural faith is its clear nature as a synthesis: on the one hand, the believer has faith in the existence of a certain "whole" or totality, namely, the object whose existence is affirmed. However, prior to this, that object must have a meaning and a structure, because only in this way can it enter into the existential sphere of the believer. In other words, in order to affirm or deny the existence of an object, the object must be completely structured. For this reason, Fabro attributes the task of "bringing about" the object within the realm of natural knowledge to perception.

It is perception, and not mere sensation, argues Fabro, that produces this "presence" in the subject, because sensation *qua* sensation is devoid of meaning and structure. The synthetic function of perception has two moments: the first, the primary structure of forms or figures in time and space, and the second, the meaning of such things in reality. These two moments can be considered as the formal and intentional levels, the primary and secondary sensorial organizations, of which Aquinas speaks.

Since faith requires meaning, Fabro contends that it should be obvious that there is no belief regarding reality in the first stage, but rather it comes at the end of the second, a moment brought about by the cogitative power under the intellect's influence. Here as well Fabro refers to the concrete meaning or content of an object in "lived life", and hence he concludes that:

> It is precisely within the intentionality of lived life (the sphere of the Thomistic "cogitative power") that the moment of natural or immediate faith emerges: in fact, it involves various and multiple attitudes that refer to the contents of fantasy and above all of memory within which the objects of immediate experience "come alive," so to speak. . . . It is above all "natural or spontaneous faith" in immediate perceptions: "I see the house, the tree, the sky. . . ," as well as when I see my friend N.N. who comes towards me or I recognize him on the phone at the first sound of his voice. Natural faith is manifested in the "putting into action" and therefore in the convergence and unification of the various intentional sectors mentioned above: however, it is not the simple result or effect, but rather, first, it is the synthesis that springs from the depths of the subject for that convergence and unification[261].

[261] FABRO, *DEAE*, 419-422.

The role of the *vis cogitativa* in the act of faith has, it seems, not been treated elsewhere. It is beyond the scope of our study to examine it here, and so we will limit ourselves to quoting Rossi's concise assessment of the text:

> Although in *DEAE* the references to the functions of the cogitative power are minimal compared to what has been done in the volumes on perception, the cogitative acquires a new importance in this mature volume. In *PP* it was fundamental because the intellect, at the moment of perception, does nothing but translate into the intelligible what the cogitative power had sensibly apprehended. Now, in *DEAE*, it is the cogitative power that attests to the presence of meaning, serving as the foundation for the original synthesis of act and content. In this way the doctrine of *experimentum* takes on a new vigor, because it founds, not only in terms of content, but also in terms of act, the birth of the transcendentals and the first principles[262].

While Rossi's assessment is in general sound, it should be noted that these elements were already in latent form in the earlier texts. Given Fabro's repeated insistence on the cogitative power's connection with reality, and the great emphasis in earlier works we have seen on the power's various functions, the claim could perhaps be moderated.

Lastly, it must be noted that Fabro is not the only philosopher to note the importance of the cogitative power in the "grasping of existence". Towards the end of his *The Discursive Power*, Klubertanz includes a section entitled "The Discursive Power and the Grasp of Existence". While admitting that Aquinas never explicitly attributes the grasp of existence to the cogitative power, he notes that there are clues: for Aquinas, while no external or internal sense can grasp existence (since "this is a function of intellectual judgment"), existence cannot be separated or "grasped apart from actual sensation"[263]. Hence, he writes:

> We can therefore conclude that the first judgment of existence requires, as a necessary antecedent condition, the judgment of the estimative. What about later judgments of existence? It would seem that the discursive power functions here as giving the subjective unity of perception by way of interest and attention, as well as bearing on the verb, in so far as action, time, and motion are concerned[264].

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[262] ROSSI, *La fundación teórica*, 371-372.
[263] KLUBERTANZ, *The Discursive Power*, 294.
[264] KLUBERTANZ, *The Discursive Power*, 294.

What Klubertanz intends is that both animals and humans before they acquire use of reason know that an object "is", because they perceive it as an object of passion or action. Hence, when an animal perceives the danger of "predator", there is, at least implicitly, the judgment of the existence of the predator. For this reason Klubertanz affirms that this first judgment of existence requires a prior judgment of the estimative, and not necessarily the cogitative, since this judgment is available to both animals and humans.

The latter judgments of existence would appear to refer to how the intellect applies its judgment to the particular by means of the cogitative power. Hence the cogitative is responsible for uniting the intellect with the sensible realm, and since the cogitative is in contact with the particular concrete, it can modify the copula accordingly: for instance, the rock "is there", "was there", "was moved", "is being moved", and so on.

Conclusions

In order to conclude our exposition regarding the thought of Fabro regarding Aquinas' cogitative power, we can examine, first, some particular points raised in the secondary literature, and, second, to underscore certain Fabrian notions that will be important for the rest of our study.

Notes regarding the secondary literature

By means of conclusion, we can consider the various criticisms raised in the secondary literature against Fabro's position. While the importance of Fabro's research and insights are recognized, there are criticisms that have been raised that should be addressed when considering his position *vis-à-vis* the cogitative power. These criticisms can essentially be reduced to three: the *historical criticism*, which rejects Fabro's assertion that the Thomistic *vis cogitativa* is essentially the same as that of the Arabic philosophers; *the criticism regarding the relation between the faculties*, which argues that in order of operation the cogitative power should precede memory; and the

intellectualist criticism, which maintains that the Fabrian view of the *vis cogitativa* is exaggeratedly intellectualist, such that it becomes a sort of quasi-intellect.

The *historical criticism*, raised in particular by Klubertanz, seems to be the most well founded of the three. In his works, Fabro presents a view that many have criticized: he claims that Aquinas was directly inspired by the commentary of Averroes, and cites several texts regarding the cogitative power from the Commentator's works. What has been criticized in Fabro's view is found at the end of a section, where he claims:

> It is necessary to note, however, that the Latin (Thomistic) theory of the *cogitativa* differs from the Arabic (Averroistic) on two important points: in having freed the *cogitativa* from the connections it had with the controversy about the 'unity' of the separated intellect, and in having raised it above the memory, which for the Arabs was the most noble of the senses[265].

The critique that several scholars raise regarding this point is that Fabro's analysis seems superficial. After reproducing the cited text in full, Klubertanz comments that "[s]uch a statement implies that *cogitativa* was the same faculty in the two authors. But if *cogitativa* in St. Thomas is the discursive imagination (or the human reason, according to Professor Wolfson), then the implication is false"[266]. While an analysis of the historical veracity of Klubertanz's claim is beyond the scope of our work, the American Jesuit's lengthy analysis of the historical background of Aquinas's understanding of the *vis cogitativa*, and the absence of a similar treatment in Fabro's work, lends credence to Klubertanz's assertion. However, we can state that the vast secondary literature regarding the *vis cogitativa* in the Arabic tradition does seem to indicate an understanding that is more at odds with the Thomistic one than Fabro admits; the Italian philosopher simplifies the differences, perhaps in part because he sees that for Aquinas the object of the cogitative power and said power's functioning is clearly in continuity with the Arabic line.

The *criticism regarding the relation between the faculties* is espoused by Barker, who proposes that in the order of operation, the act of memory follows the act

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[265] FABRO, «KPP», 355, ftn. 31.
[266] KLUBERTANZ, *The Discursive Power*, 277, ftn. 56.

of the cogitative. While Barker does not consider Fabro in great depth, as was discussed earlier, he offers a criticism of the Italian philosopher regarding the order of the faculties. Regarding the order of reception and operation, Barker notes that Fabro "places memory before the cogitative". However, Barker notes his disagreement "since the cogitative is not a retentive power; qua receptive or retentive power, the act of memory follows that of the cogitative"[267]. Hence, Barker places the memory after the cogitative power in the order of reception and operation:

External senses > Common sense > Imagination > Cogitative > Memory > Intellect

However, in the order of control and *imperium*, Barker maintains Fabro's ordering, namely:

Intellect > Cogitative > Memory > Imagination > Common sense > External senses

Barker raises an important point in that the memory stores intentions. However, it is perhaps too extreme to reject Fabro's placement of the cogitative *tout court* simply because of the memory's retentive function. As was shown above, Fabro places the cogitative where he does in the order of operation precisely because of its proximity to the intellect and its participation in it; it is the cogitative that prepares the phantasm for abstraction, and this is clear in Aquinas's texts. While Barker is right to point out that intentions are stored in the memory, the order of operation still requires the cogitative to be set immediately before the intellect, and this because of its participation in the soul's higher faculties. Barker's modification makes a point, but at the expense of sacrificing the unified vision of the soul, the notion of participation (which is at the root of Fabro's epistemology), and distorting the whole of the process of perception, as the order of command is no longer simply the inverse of the order of operation. In Barker's vision, it appears the memory directly connects to the intellect. Rather, it is the cogitative that occupies this position, since not only does it prepare the phantasm for

[267] BARKER, *The Cogitative Power*, 210.

abstraction, but it also retains contact with the particular concrete. The cogitative power certainly consults the memory regarding stored intentions, and this appears to be Barker's point; it seems his concern is to note that the cogitative power consults the memory but, nonetheless the potential tradeoffs seem a price too high to pay to make a simple point that could be clarified with a footnote. While it seems that Barker intends to make a legitimate point, there is significant risk of confusing the cogitative power's pivotal position as the nexus between the sensitive and intellectual realms.

The third criticism, the *intellectual criticism*, is espoused by Muzsalski[268]. Both maintain that Fabro's insistence on the cogitative power's connection with the intellect results in an over-intellectualization of the power. There are three points which I think would help to clarify Muszalski's position in *Cogitativa y amistad*: the first is methodological, and the others concern the notion of *intentio* and Fabro's supposed agreement *tout court* with Rahner's understanding of the cogitative power.

Muszalski shows a great familiarity with the Thomistic texts and has contributed a great deal to the understanding of a neglected aspect of the cogitative power. However, he shows much less familiarity with the works of Fabro, especially for the critique that he wants to attempt. First, although Muszalski could have used the original Italian texts for Fabro's work, he instead opted to use the Spanish translations *Introducción al tomismo* and (more importantly) *Percepción y pensamiento*. Given that his work is in Spanish, it is understandable that these translations would have been much easier to use than the originals. However, Fabro's texts are notoriously complicated and difficult to translate, and even published translations are no guarantee

[268] While Muzsalski's arguments are more complex, Rudolf Allers makes a similar argument which also shows a lack of understanding of Fabro's metaphysics: after quoting Fabro's assessment that the cogitative power is ultimately rooted in the intellect, he argues that "[t]erms like being rooted, continuation, participation and others, veil more the difficulties than they contribute towards their solution" (R. ALLERS, «The Vis Cogitativa and Evolution», 211.). If a philosopher finds the notion of participation to be confusing, their understanding of any metaphysics of participation will also be confused. Allers' confusion is understandable since, writing in 1941 in the United States, it is unlikely he would have had access to Fabro's 1939 *La nozione metafisica di partecipazione secondo s. Tommaso d'Aquino*, wherein the notion of participation is more fully explained.

of accuracy: indeed, Fabro's *Introduzione all'ateismo moderno* was translated and published as *God in Exile*, which is no small feat, but the translation misses an abundant number of philosophical references and takes a great deal of poetic license with the text[269].

Likewise, and perhaps more importantly, having used the original Italian texts would have ensured that Muszalski had indeed understood Fabro's meaning, and, furthermore, there is an extremely practical benefit: he would likely have recognized the repetition of the texts within *PP*, and thus would have realized that some of his claims are perhaps exaggerated. For instance, here is a claim Muszalski makes:

> Why did Fabro pass from denying an immediate intellectual knowledge of the singular in 1938 to affirming it in his 1941 book? [In footnote 163: Indeed, as it appears in the text that we have just cited, for Fabro in 1941 "It can be understood how the understanding can have an *immediate*, although indirect, contact with the first substance? (C. Fabro, *Percepción y pensamiento*, 333). Emphasis ours.] How could the cogitative power enter into an intellectual intuition of the material singular, such as is affirmed in *Perception and Thought*?"[270]

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[269] E.g. Gibson translates this passage (*Introduzione all'ateismo moderno*, ED.IVI, Segni 2013, 36), "Può essere quindi, può accadere, che l'ambiente in cui si trova l'uomo e l'educazione ch'egli riceve lo portino ad assorbire il principio d'immanenza ed a svolgerlo fino a coglierne l'inevitabile amata atea ed a riposare in essa «per qualche tempo.» *Ma non per sempre*," as: "As things actually stand, however, it can happen that the environment in which a man lives and the education, training, and conditioning he receives may impel him to absorb the principle of immanence until it becomes *intellectual blood and bone to him*; then he may indeed elaborate and work on this principle to the point where he *distills from it its inevitable atheist marrow*, on which he then *may gnaw for nourishment* 'for some time.' But not for always!" (*God in Exile*, Newman Press, Westminster, MD 1968, 28). Literally, the translation should read, simply: "the environment in which a man lives and the education that he receives may result in him absorbing the principle of immanence in such a way that it leads him to the inevitable atheistic application and even to rest in it 'for some time.' *But not indefinitely*" (translation mine).

[270] MUSZALSKI, *Cogitativa y Amistad*, 252: "¿Por qué Fabro ha pasado de negar el conocimiento intelectual inmediato del singular en el año 1938 a afirmarlo en su libro del año 1941? ¿Cómo podría entrar la cogitativa en una intuición intelectual del singular material, tal como se afirma en *Percepción y pensamiento*?" Footnote 163 on the same page, with reference after 1941, reads: "En efecto, como aparece en el texto que acabamos de citar, para el Fabro del año 1941 «se puede comprender cómo el entendimiento puede tener un contacto *inmediato*, aunque indirecto, con la substancia primera» (C. Fabro, *Percepción y pensamiento*, 333). El subrayado es nuestro".

There are several points to be addressed. First, Muzsalski seems to be unaware of the dependence, often verbatim, of *PP* on earlier texts. Hence, it is possible the "1941 position" is much *earlier* than Muzsalski suspects, and indeed this is the case. In fact, as shown above, that particular text is largely taken from the 1939 «PISM». Although the phrase is not found *verbatim*, the vision is present. Hence, Muzsalski's claim of a radical change in Fabro's thought is at best exaggerated, and at worst simply erroneous: rather than read *PPs* as discontinuous with «PPS», it would make much more sense to read «PPS» in harmony with «PISM», as Fabro himself intended the works to be read, and then examine the doctrine in light of *PPi*. Furthermore, this particular doctrine must be examined in light of the whole context: in the text cited, Fabro is speaking of a spiritual operation, namely, the reflection of the intellect upon what it knows. Hence, the operation is *immediate*, since the object of the intellect is immediately present to itself.

This need for examination of the context can also be seen in our second point regarding the notion of *intentio*. Muzsalski indicates that:

> In order to clarify the nature of the cogitative power, therefore, it seems unfitting for us to start from an understanding of *intentio* that only looks to the reality of intellectual knowledge, to then later attempt to identify it with the object of this sensitive potency. In our opinion, this is the path that Father Cornelio Fabro chooses, who, at the moment of describing the formal object of the human estimative power, indicates that «in general, the "intentio" signifies the way of being that objects have insofar as they are known»[271].

Two possible points of confusion can be indicated. First, the quote has been oddly parsed: the phrase in *PP* continues as Fabro comments that "in this respect the '*forma'* also belongs to the intentional order." In other words, Fabro is simply discussing the notion of intentionality in general: there seems to be a misunderstanding

[271] MUSZALSKI, *Cogitativa y Amistad*, 56, ftn. 65: "En orden a esclarecer la naturaleza de la cogitativa, por lo tanto, nos parece inconveniente partir de un concepto de *intentio* que solo atienda a la realidad del conocimiento intelectual, pretendiendo luego identificarlo con el objeto de esta potencia sensitiva. Según nuestro parecer, este [*sic*] es el camino que elige el padre Cornelio Fabro, quien, al momento de describir el objeto formal de la estimativa humana, señala que «la "intentio" en general significa el modo de ser que tienen los objetos en cuanto son conocidos»".

or misinterpretation of the value of the text. A few lines later, Fabro clarifies further, noting that, strictly speaking, the *intentio* refers to the value or meaning of the object for the sensitive subject. These distinctions seem lost in Muzsalski's interpretation, since he fails to mention the many distinctions that Fabro goes to great lengths to make.

Secondly, Muzsalski's theory emphasizes the role of the will in the *intentio*, as he writes:

> This understanding of *intentio* is consistent with the definition of it given by Saint Thomas: "*Intentio, as the name itself indicates, meaning to tend to something*." Thus understood, it is clear that it designates the act of the will; and, even, it denotes its act more than that of the sensitive appetite, since the rational appetite has in the same reason the foundation of its own tendency. The *intentio*, therefore, belongs *primo et per se* to the will, although it may be applied in a derived sense to the sensitive appetite[272].

Pace Muzsalski, the will and the sensitive appetite play an important role regarding intentionality. However, this argument, which seems to be the lynchpin of Muzsalski's entire thesis, seems to force the Thomistic texts; indeed, a simple examination of a Latin dictionary reveals that *intendere* means to reach out to or to grasp, but this can be taken in an intellectual sense. This is why, for instance, the Spanish *entender* and Italian *intendere*, which both derive etymologically from the Latin, have preeminently intellectual meanings.

These factors are at the root of Muzsalski's rather confusing claim of Fabro's supposed agreement *tout court* with Rahner's understanding of the cogitative power. This claim results from the best of intentions on Muzsalski's part, but there is a great deal confusion regarding Fabro's position. With the omission of key distinctions, and such a voluntaristic understanding of the "*intentio*", it is easy to reduce all positions that portray a more "intellectual" vision of the power to the same point of view.

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[272] MUSZALSKI, *Cogitativa y Amistad*, 53: "Esta concepción de la intentio es coherente con la definición que de ella da santo Tomás: «*Intentio, sicut ipsum nomen sonat, significat in aliquid tendere*». Así entendida, es claro que designa el acto propio de la voluntad; e, incluso, denota más su acto que el del apetito sensitivo, pues el apetito racional tiene en la misma razón el fundamento de su propia tendencia. La *intentio*, por lo tanto, pertenece *primo et per se* a la voluntad, aunque pueda aplicarse en un sentido derivado al apetito sensitivo".

Lastly, the fact that *SAKR* was written specifically against Rahner should make those who wish to identify Fabro's position with that of the German theologian hesitate. Ultimately, the inaccuracies of Muzsalski's position can be reduced to two: first, in neglecting the distinctions and particularly the levels of synthesis proffered by Fabro, and second, and at the foundation of the first, is the lack of emphasis on the metaphysical foundation of Fabro's doctrine. If, as we insist and have shown, Fabro's doctrine on the *vis cogitativa* cannot be separated from his metaphysical doctrines, then there is no possibility to identify the Italian philosopher's position *tout court* with that of the German theologian.

Indeed, a reading of *SAKR* reveals that there is a great difference between Fabro and Rahner. As Rahner provides his exegesis of the Thomistic cogitative power in *Spirit in the World*, he proposes, on one hand, the cogitative power is indeed the passive intellect, not in limited sense in which it sometimes appears in Aquinas's texts, but rather it is truly an *intellect*. Rahner argues that the cogitative power is a sense power (that is, an internal sense) only because its object is an individual and hence sensible[273]. For Fabro, the cogitative power is the highest internal sense and is bounded to a physical organ. On the other hand, since Rahner maintains that the cogitative power is thus spiritualized, there are no real differences to be found between the higher internal senses[274].

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[273] K. RAHNER, *Spirit in the World*, Herder and Herder, New York 1968, 304-305: "It is precisely this relationship that is present in our case. The differentiated unity of the common nature and the individual can unfold as a unity with an *individual* only in the medium of sensibility. For that reason, and only for that reason, the place of this unity, the power and its act, is called sensible. . . . The cogitative sense is really the passive intellect: the center of the free spontaneity of the spirit (intellect) and the reception of the encountering other in sensibility (passive)".

[274] See RAHNER, *Spirit in the World*, 305-308, the section entitled: "The Cogitative Sense in Its Union with Imagination in the One, Original, Imaginative Power of the Spirit". At one point Rahner writes: "Two powers can also be called objectively different in a certain respect when they belong to a single existent and form a single totality of meaning, in fact even when they belong to a common origin and owe their being almost to the same emanation. Now imagination and cogitative sense are, *at most*, objectively different in this last sense" (306, emphasis mine).

While it is beyond the scope of our work to give a complete examination of the *vis cogitativa* in Rahner, and thus compare it with Fabro's understanding, it is sufficient to say the Italian philosopher finds Rahner's teachings to be incompatible with Thomistic teaching. Briefly stated, the problem is not solely with Rahner's interpretation of the cogitative power *per se*, but rather with the whole of the Rahnerian system. Indeed, as Fabro announces in the introduction to *SAKR*: "But Rahner bamboozles and openly manipulates the obvious and fundamental Thomistic texts and contexts. . . . This hermeneutic contamination or deprivation of Thomism, performed by Rahner, proposes to impose the Kantian transcendental method on Thomism"[275].

Hence, while this has the potency to be the most serious critique, it is also the clearest to show why Fabro's vision of the *vis cogitativa* is unique. Fabro's view is based on his metaphysical vision that emphasizes the importance of participation; if sight is lost of this foundation, it is easy to misunderstand the Italian philosopher. In the simplest terms, this seems to be the error of Muzsalski.

However, the criticism serves as a warning: without an accurate vision of Fabro's metaphysics, it is impossible to understanding his doctrine on the cogitative power.

Notes regarding the Fabrian doctrine concerning the cogitative power

Lastly, we should emphasize three particularly Fabrian aspects regarding the cogitative power.

The metaphysical necessity of the cogitative power

First, as was noted in the introduction, Fabro's methodology is that of metaphysics. This metaphysical methodology makes particular use of the notion of participation and of the principle of the metaphysical continuity of being, that is, that

[275] FABRO, *SAKR*, 7: "Ma [Rahner] mistifica e manipola apertamente i testi ed i contesti tomistici ovvi e fondamentali. . . . Questa contaminazione o depravazione ermeneutica del tomismo, operata da Rahner, si propone di imporre al tomismo il metodo trascendentale kantiano".

the highest of the lower touches on the lower of the highest. Hence, it becomes apparent that in Fabro's reasoning there is a *metaphysical necessity* for the cogitative power. Since man has both a body and a spiritual soul, he is at the border between material beings and spiritual ones. His intellect allows him to know universals and immaterial concepts, and his body allows him to know sensible and concrete realities. To bridge the gap, there must be a faculty that, while sensible, "participates" in the intellect, and this is precisely the role of the cogitative power. Without said power, man would be fragmented into a material self and a spiritual self, without the two parts being able to communicate. This is truly a metaphysical jump from the lower animals: the lower animals might be able to incorporate all sorts of information into their memories, but their estimative powers remain fixed by their instincts. On the contrary, by its participation in the intellect, the cogitative power rises above the level of mere instinct and allows for the evaluation and incorporation of experiences and intentions in a way that is simply beyond the capacity of irrational animals, precisely because of their irrationality.

The proper object of the cogitative power and the power's functions

Second, we can say the proper object of the *vis cogitativa* are the *sensibili per accidens*, also referred to as the *intentiones insensatae* or the *intentio*. Although we were able to delineate ten different functions of the cogitative power, all these functions can be traced back to this object. Indeed, it could not be otherwise, since different objects would require different faculties. The many different aspects of the cogitative's functions, both ascending and descending, from forming the *experimentum*, to the affirmation of reality, to the elaboration of the phantasm, to the incorporation of social, cultural, and emotional aspects into value judgments, are all related to its one object: the *intentiones insensatae*. What appears novel in Fabro's approach is that the notion of these *intentiones insensatae* is quite broad: indeed, it is so broad as to encompass universals and the predicaments but in a particular instantiation, value judgments that arise from the culture and language as well as from the emotions, as well as the persuasion of existence. As has been seen, such a teaching is found at least in seminal

form in Aquinas, but Fabro has drawn out the consequences and emphasized that these individual notions and intentions include a great number of things.

The cogitative power and lived life

Third, the cogitative power as understood by Fabro takes on an importance in lived life that, while implicit in Aquinas' teachings, seems to have been overlooked. The cogitative power is not only *dynamic*, in that it incorporates the most recent conditions and information into the phantasm as well as value judgments, it is also *personal* faculty, in the sense that in the *experimentum* the cogitative power incorporates a lifetime of experiences, emotions, social and cultural norms, as well as emotive states. Without this power, there would be no sense of personal identity maintained through the *experimenta*, no particular experiences or values that have been developed over time.

Chapter 2

Phenomenology and the Body according to the thought of Maurice Merleau-Ponty

Having examined the functions of the cogitative power established and studied by Fabro, we can now turn to our first interlocutor: Maurice Merleau-Ponty and his phenomenology of the body. As discussed earlier, some Thomists have seen a possible point of engagement with the thought of the French phenomenologist Maurice Merleau-Ponty. To examine the possibility of such an engagement, we must first examine the foundations of his phenomenology, in particular its epistemological framework and anthropological assumptions, as well as the key concepts that emerge from them. With this framework, we will be in position to examine how the level of analysis found in enactivist thought can help to understand, fine-tune, or even modify Aquinas' doctrine on the nature and object of the cogitative power and the object Scholastics identified as *sensibili per accidens* as Fabro understands it.

Status quaestionis: the possibility of integration

A search of the secondary literature reveals many attempts to bring Aristotelian and Thomistic philosophy into an encounter with the thought of Maurice Merleau-Ponty. We can briefly consider six authors, known for their Thomism, and consider their perspectives regarding the integration of the thought of these two thinkers, as this will give insights into aspects to be considered and pitfalls to avoid. These authors will be divided into three groups: 1) those who affirm that Merleau-Ponty and Aquinas are essentially compatible; 2) those who affirm the essential incompatibility between the

two, and; 3) those who contend that, while the starting points and technicalities of their systems may render a simple synthesis impossible, nevertheless the French thinker can offer insights that help clarify aspects of Aquinas' understanding. Those who affirm a general compatibility are Remy C. Kwant, Joshua Miller, and Mark Kenneth Spencer; Mary Rose Barral denies the compatibility of the systems; Fredrick M. Jelly and Cornelio Fabro are generally critical of Merleau-Ponty but acknowledge insights that can aid a Thomistic understanding of perception.

Remy C. Kwant, O.S.A. – Merleau-Ponty becomes a metaphysician

Remy C. Kwant, O.S.A. (also referred to as Remigius Cornelis Kwant and Kees Kwant, 1918-2012) was formed in the Thomistic tradition and introduced to phenomenology and the works of Merleau-Ponty during his post-graduate studies. His major works of interest to our study include *De gradibus entis* (1946 - a modified version of his doctoral dissertation), *The Phenomenological Philosophy of Merleau-Ponty* (1962 original, 1963 in English translation), and *From Phenomenology to Metaphysics: An Inquiry into the Last Period of Merleau-Ponty's Philosophical Life* (1966)[276].

Kwant's Thomistic formation is clearly at work in his unique vision of Merleau-Ponty. *From Phenomenology to Metaphysics* presents a unique understanding of the French phenomenologist's mature thought based on the incomplete *The Visible and the Invisible*[277]. Among Kwant's key claims are that most of Merleau-Ponty's philosophical vision remains locked within the Cartesian dualism: "In the *Phenomenology of Perception*, Merleau-Ponty has tried to transcend the absolute

[276] R. C. KWANT, *De gradibus entis*, Amstelodmai, Paris 1946; R. C. KWANT, *De Fenomenologie van Merleau-Ponty*, Het Spectrum, Utrecht 1962; R. C. KWANT, *The Phenomenological Philosophy of Merleau-Ponty*, Duquesne University, Pittsburgh, PA 1963; R. C. KWANT, *From Phenomenology to Metaphysics: An Inquiry into the Last Period of Merleau-Ponty's Philosophical Life*, Duquesne University Press, Pittsburgh, PA 1963.

[277] M. MERLEAU-PONTY, *Il visibile e l'invisibile*, Editions Gallimard, Paris 1964. Published in English as M. MERLEAU-PONTY, *The visible and the invisible*, Northwestern University Press, Evanston, Illinois 1980.

Cartesian opposition between thing and consciousness; but in the end he falls back into it"[278]. It is only with *The Visible and the Invisible* that the French thinker overcomes this opposition by positing a more fundamental unity within savage being: "The distinction between the two orders and the relationship between subject and object derive from a more primordial unity"[279]. It is this unity that brings Merleau-Ponty, claims Kwant, from phenomenology to metaphysics.

Neither Kwant's view of Thomism nor his research regarding Merleau-Ponty garnered much appreciation among scholars. Regarding the first, his *De gradibus entis* was subject to a particularly pointed review by Fabro, focusing on numerous lacunae and historical confusions[280]. On the second front, Kwant's work on Merleau-Ponty was also sharply criticized by scholars as "superficial" and even "aberrant" in its line of reasoning, having entirely ignored several important works[281].

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[278] KWANT, *From Phenomenology to Metaphysics*, 23.

[279] KWANT, *From Phenomenology to Metaphysics*, 40. Whether what Merleau-Ponty means by "savage being" could be translated into a category of traditional metaphysics is unclear. In P. DUPOND, *Le vocabulaire de Merleau-Ponty*, Ellipses Édition, Paris 2001, Dupond offers a concise exegesis of the concept, s.v. Être brut (Être sauvage, Être vertical) "L'être brut désigne le «monde avant la connaissance dont la connaissance parle toujours» (*PP* III), le «monde vécu» (*VI* 208), le «monde present qui veille aux portes de notre vie» (*VI* 209), le «monde perçu» (*VI* 223), auquel nous sommes ouvert dans la foi perceptive, qui est «sauvage» en ce qu'il n'est pas encore «réduit à nos idéalisations et à notre syntaxe» (*VI* 139)" (22).

[280] The exchange consists of: C. FABRO, «Review of R. Kwant, *De gradibus entis*, Ed. H. J. Paris, Amsterdam 1946, 1 vol. in-8°, pp. XIX-197», *Divus Thomas* 50/1–2 (1947), 126–128, R. C. KWANT, «Il soggetto dell'essere», *Divus Thomas* 51 (1948), 146-151, C. FABRO, «Sull'oggetto della metafisica», *Divus Thomas* 51 (1948), 152-154, followed by R. C. KWANT, «Il soggetto dell'essere», *Divus Thomas* 52 (1949), 382–387, and then Fabro's final reply «Replica a Il soggetto dell'essere», *Divus Thomas* 52 (1949), 387 (Fabro's reply is omitted from the table of contents, perhaps on account of brevity and its essential belonging to Kwant's text).

[281] See M. VANHOUTTE, «Review of Remy C. Kwant, The Phenomenological Philosophy of Merleau Ponty», *Revue Philosophique de Louvain* 64/82 (1966), 322–325: "Il en résulte que les problèmes évoqués par K. dans ses considérations critiques revêtent un caractère proprement aberrant" (324); "K. n'a pas bien lu *Signes*, *L'œil et l'esprit*, n'a pu prendre connaissance des leçons sur la *Nature* ni des fragments sur *Le visible et l'invisible*. Il trouve finalement que la philosophie de Merleau-Ponty est «ennuyeusement vague» (p. 237), rejoignant en cela le jugement superficiel que vient d'émettre M. Piaget dans *Sagesse et illusions de la philosophie* lorsqu'il écrit: «le résultat est tout de même pitoyable d'une œuvre qui ne débouche que sur un tableau de l'homme comme conscience ambiguë» (p. 219)" (325).

Joshua Miller – Merleau-Ponty and Aquinas agree on body-soul union

Joshua Miller authored his 2009 dissertation at Duquesne University *On Whether Or Not Merleau-Ponty's Phenomenology of Lived Body Experience Can Enrich St. Thomas Aquinas's Integral Anthropology*. Divided into four chapters, Miller first presents possibilities for contact between the two thinkers and raises possible objections to their dialogue. The second chapter presents the thought of Aquinas, the third that of Merleau-Ponty, and the fourth and final chapter attempts to answer the objections raised in the first chapter. Although a detailed examination is beyond the scope of our work, a few pertinent observations are important:

The first chapter notes that contemporary issues in neuroscience have led both Thomists and Merleau-Pontians to re-examine the potential contributions of their respective patrons. Miller presents Eric F. LaRock and Ralph Ellis as paradigmatic examples of such considerations[282]. Nevertheless, Miller also reports three potential objections that have been raised by others to a fruitful collaboration between the two thinkers: 1) the two philosophers have very different understandings of philosophy and of the philosophical method; 2) Merleau-Ponty's work proclaims a purely materialistic anthropology which is at odds with Thomistic doctrine, and 3) Merleau-Ponty "only sees the human being as an integral unity within our conscious life" and hence does not seem to make metaphysical assertions[283].

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[282] Miller examines E. F. LAROCK, «Dualistic Interaction, Neural Dependence, and Aquinas's Composite View», 3/2 (2001), in 10.5840/pc20013243 [24-6-2021], 459–472, and R. D. ELLIS, «Phenomenology-Friendly Neuroscience: The Return To Merleau-Ponty As Psychologist», *Hum Stud* 29/1 (2006), in 10.1007/s10746-005-9010-5 [24-6-2021], 33–55.

[283] J. MILLER, *On Whether Or Not Merleau-Ponty's Phenomenology of Lived Body Experience Can Enrich St. Thomas Aquinas's Integral Anthropology*, Duquesne University, Pittsburgh, PA 2009, 55. For the first objection, Miller cites R. F. HARVANEK, «The Crisis in Neo-Scholastic Philosophy», 38/4 (1963), in 10.5840/thought196338442 [24-6-2021], 529–546; for the second, S. PRIEST, *Merleau-Ponty*, Routledge, New York 1988, and F. J. EVANS, *Psychology and nihilism*, SUNY Press, Albany, NY 1993; for the third, D. BRAINE, *The Human Person*, Notre Dame University Press, Notre Dame 1992, G. B. MADISON, *The Phenomenology of Merleau-Ponty*, Ohio University Press, Athens, OH 1981, and BARRAL, «Thomas Aquinas and Merleau-Ponty».

After presenting a synopsis of both Thomistic and Merleau-Pontian thought, Miller answers the three objections as follows: 1) while the two thinkers have differing notions of experience, Merleau-Ponty's thought is not "presuppositionless" but rather relies on the body and subjective experience. Likewise, although there are methodological differences in that Merleau-Ponty gives qualitative descriptions whereas Aquinas looks for causes and uses logic, Miller offers an instance where the French phenomenologist uses a logical argument, thus indicating that the two have compatible methods; 2) While it is true Merleau-Ponty claims the human person is their body, Miller finds the thinker's distinction between "phenomenal body" and "objective body" and a curious footnote reveal that his is not a purely materialistic anthropology[284]; 3) Nor is Merleau-Ponty an idealist, because it is not consciousness that gives meaning to objects, but rather the constant give-and-take of interaction with the world[285].

With the objections answered to Miller's satisfaction, he then turns to examine how the French phenomenologist can enrich Aquinas's thought, first by noting areas of compatibility. These are: 1) both admit perception as the basis for knowledge and the reason they believe the human person is "an integral union of body and soul"; 2) they both appeal to interior (or internal) experience to understand this union, and; 3) Aquinas's methodology is open to insights from phenomenology as it is open to the

[284] This distinction is found in MERLEAU-PONTY, *Phenomenology of Perception*, 106: "It is never our objective body that we move, but our phenomenal body, and there is no mystery in that, since our body, as the potentiality of this or that part of the world, surges towards objects to be grasped and perceives them". Footnote 1 on the same page explains further: "It is not a question of how the soul acts on the objective body, since it is not on the latter that it acts, but on the phenomenal body. So the question has to be reframed, and we must ask why there are two views of me and of my body: my body for me and my body for others, and how these two systems can exist together".

[285] MILLER, *On Whether Or Not Merleau-Ponty's Phenomenology*, 236: "The subject-object dialogue is a continuous 'give and take,' an ongoing dialectical relationship. In Merleau-Ponty's vision of the world human subjects and the objects to which they relate exist in a state of mutual developmental flux. Human consciousness continues to be altered by our engagement with the world and the meaning of objects in the world continues to change due to our engagement with it".

truth, since both systems rely on perception as the basis for knowledge and on subjective experience to understand the body-soul union.

The last section, which is the most anticipated as it contains the promised "Merleau-Pontian Enrichment of Aquinas's Philosophical Anthropology" spans less than nine pages (265-273). This enrichment is reduced to three points, entitled: 1) "Merleau-Ponty's Phenomenological Insights Richly Illustrate Aquinas's Position that the Intellectual Soul is Form of the Body" (265-267); 2) "Merleau-Ponty's Phenomenological Descriptions Can Offer a Better Experiential Base for Aquinas's Arguments than He Himself Provides" (267-270), which is defended, in part, by saying "Our thinking does not simply take place in a bodily being but that it actually becomes itself in bodily acts of expressing. This simply could not be unless the intellect was form of the body"[286], and; 3) "Merleau-Ponty's Phenomenological Descriptions Can Be Used to Extend Aquinas's Claims Regarding the Intellect's Knowledge of Itself" (270-273).

A perplexing and damaging resemblance is that which Miller draws between Aquinas and Merleau-Ponty regarding the body-soul union. That the two thinkers agree regarding an integral union of body and soul is the crux of Miller's argumentation. However, the argumentation seems rather forced and specious. In this regard, many scholars disagree with Miller: for instance, Barral notes "for Merleau-Ponty the terms 'body' and 'soul' do not have the classical connotation"[287]. A short time later, she notes that studying behavior as presented by Merleau-Ponty sheds light on various dialectics, among them body and soul. However, she notes "it will not be easy—perhaps not even possible—to attempt a synthesis which Merleau-Ponty himself has declined to make" [288]. Likewise, Kwant notes the spiritual side of man, his "soul", was to be the particular focus of Merleau-Ponty's last work[289]. In short, it seems at best that Miller's

[286] MILLER, *On Whether Or Not Merleau-Ponty's Phenomenology*, 270.
[287] M. R. BARRAL, *Merleau-Ponty: The Role of the Body-Subject in Interpersonal Relations*, Duquesne University Press, Pittsburgh, PA 1965, 92.
[288] BARRAL, *Merleau-Ponty: The Role of the Body-Subject*, 93.
[289] KWANT, *From Phenomenology to Metaphysics*, 19-20. The text of interest is taken from Merleau-Ponty's working notes for the text, which read: "In my first volume—after physical

identification of Aquinas's notion of soul with that of Merleau-Ponty is hasty, if not entirely erroneous.

Mark Kenneth Spencer – Merleau-Ponty's self-sensing supports hylomorphism

The third text to be considered is Mark Kenneth Spencer's 2012 doctoral dissertation *Thomistic Hylomorphism and the Phenomenology of Self-Sensing*. Spencer's aim is to show that "self-sensing, that is, the interior experience of one's body, as described by some phenomenologists, is evidence for Thomas Aquinas' hylomorphist metaphysics of the human person"[290]. The phenomenologists considered are Max Scheler, Maurice Merleau-Ponty, Emmanuel Levinas, and Michel Henry, and hence the scope is narrow.

Again, a detailed analysis is beyond the scope of our work, but to argue that self-sensing provides evidence for the substantiality, unity, and life of the human person is perhaps benign; to argue, however, that it provides evidence for the form and matter composition of the human soul and body, and that it provides evidence of the soul's subsistence, is a bold claim, especially given that the phenomenologists in question do not seem to have reached those conclusions.

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nature and life, make a third chapter where the human body will be described as having a 'spiritual' side. . . . Give my equivalent of the Cartesian concept of Nature as the institution that makes us have at one stroke what a divine science would make us understand——Give an aesthesiology. A conception of time, of the 'soul,' in the Husserlian sense": MERLEAU-PONTY, *The visible and the invisible*, 168.

[290] M. K. SPENCER, *Thomistic Hylomorphism and the Phenomenology of Self-Sensing*, University at Buffalo, State University of New York, Buffalo, NY 2012, vii. It should be disclosed that I have known Spencer for years, having gone to elementary, middle, and high school together, and work with him regarding the *American Catholic Philosophical Quarterly*; while I appreciate his studies and work regarding Thomism and particularly Thomistic personalism, our philosophical orientations are, within the realm of Thomism, rather diverse.

Mary Rose Barral – Resemblances between the two are only resemblances

Mary Rose Barral (also referred to, rarely, by her given Italian name, Maria Rosa Barale) is in a unique position to offer a perspective on the compatibility of Aquinas and Merleau-Ponty. As a graduate student at Fordham University, she wrote her Master's thesis under Dietrich Von Hildebrand and her 1963 doctoral dissertation, *Merleau-Ponty: The Role of the Body in Interpersonal Relations*, under Joseph Quentin Lauer, S.J[291]. Yet, her familiarity with Aquinas was also well-recognized[292]. With this context, we can better appreciate her insights in the 1982 article "Thomas Aquinas and Merleau-Ponty"[293].

After a thoughtful introduction, Barral notes that questions regarding the affinity between Aquinas and Husserl or Merleau-Ponty are difficult to answer: "If there are close resemblances, they are just that: resemblances"[294]. She also cautions that, while Husserl's thought might seem far removed from Aquinas, and that of Merleau-Ponty closer, "[a] little examination, however, will show suppositions quite the contrary"[295]. Barral then presents several topics and compares the thoughts of Aquinas, Husserl, and Merleau-Ponty.

Barral begins with a preliminary concern: the purpose, method, and conclusions of phenomenology confronted with those of Aquinas's thought. While both aim to investigate the individual and so reach a universal or general meaning, that is, the essence, the method and conclusions are different. Both start from the world of

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[291] See "Vita" in M. R. BARRAL, *Merleau-Ponty: The Role of the Body in Interpersonal Relations*, Fordham University, New York 1963, 352.

[292] Barral's obituary in the *Erie Times* lists her as one-time "President of the International Thomas Aquinas Society". However, upon further inquiries made to the secretary of said Society, the following reply was received: "Ho chiesto informazioni e non risulta essere stata presidente della SITA. Forse presidente di qualche sede locale: in tal caso non le saprei dire" (personal conversation via email, 02/08/2021).

[293] M. R. BARRAL, «Thomas Aquinas and Merleau-Ponty», *Philosophy Today* 26/3 (1982), 204–216.

[294] BARRAL, «Thomas Aquinas and Merleau-Ponty», 205.

[295] BARRAL, «Thomas Aquinas and Merleau-Ponty», 205.

experience, but phenomenology is content to describe it, whereas Aquinas intends to explain it. After expounding in general terms the process by which, according to Aquinas, the soul comes to that universal knowledge and, since the Thomistic view of the world is teleological, Barral notes that the ultimate end of the search for knowledge is to find the truth about God. There is a similarity in Husserl's thought, as the father of phenomenology also attempts to study essences by means of an intellectual intuition. However, Merleau-Ponty has a different understanding of phenomenology: not only is it concerned with studying essences, but all problems can also be reduced to "finding the definition of essences"[296]. However, phenomenology is also concerned with putting essences back into existence; the world we experience is already here and present, and hence we must return to this primitive contact and describe reality *as it is lived*. For this reason, Merleau-Ponty affirms, "I am the absolute source; my existence does not stem from my antecedents, from my physical and social environment. Instead, it moves out towards them and sustains them, for I alone bring into being for myself . . . the tradition which I elect to carry on"[297]. In other words, for Merleau-Ponty, it is the subject who gives meaning to the world and to the things in it.

The aforementioned discussion naturally leads to a consideration of causality. Barral cites *Sense and Non-sense*, wherein Merleau-Ponty argues that "causality . . . is not a productive operation. There is then no physical nature in the sense just given to the word; there is nothing in the world which is foreign to mind. The world is the ensemble of objective relations borne by consciousness"[298]. For Barral, this means consciousness is not causality, but rather structure, capable of modification through mutual influence. Restructuring, as a process of mutual modification, takes the place of causality.

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[296] BARRAL, «Thomas Aquinas and Merleau-Ponty», 207.

[297] BARRAL, «Thomas Aquinas and Merleau-Ponty», 208, citing M. MERLEAU-PONTY, *The Aims of Phenomenology*, Harper, New York, 1967, 122.

[298] BARRAL, «Thomas Aquinas and Merleau-Ponty», 208, citing M. MERLEAU-PONTY, *Sens et non-sens*, Nagel, Paris 1948^3, 164-66.

For the reasons mentioned above, Merleau-Ponty rejects metaphysics considered as a system and as an abstract consideration of reality, since reality cannot be considered in a fixed way. Indeed, "metaphysics and moral consciousness die in contact with the absolute"[299]. He would rather propose a metaphysics in act, one that considers the individual and subjective experiences. Barral's analysis stops short of comparing the two: indeed "[i]t could hardly be logical to attempt a comparison between Thomas and Merleau-Ponty in metaphysics"[300].

Both Aquinas and phenomenologists speak of intentionality. However, the Thomistic notion is two-fold: the object comes into the mind, and then the mind can project it back out as it affirms the object. For phenomenology, the movement is only towards the object known. For Husserl in particular, this intention is that of the knowledge of the object; hence, it is an entirely subjective knowledge.

Lastly, for both Aquinas and Merleau-Ponty, the body is a body because of the soul, and man is a unity. Barral contends, however: "but . . . similarities pretty much end here"[301]. Aquinas maintains a rigid distinction between body and soul, with the soul as the substantial form and first act of the body and which subsists after death. For Merleau-Ponty, body and soul have very different meanings: the soul is not a substance, nor can the two be separated: as he writes: "The two terms [i.e., body and soul] can never be distinguished absolutely without ceasing to be"[302]. The two are so interdependent that Merleau-Ponty prefers the term "incarnate spirit" so as to render clear the intimate connection.

Barral concludes that Aquinas and Merleau-Ponty are at least in agreement regarding the importance of perception for knowledge, and in this way, both affirm the

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[299] BARRAL, «Thomas Aquinas and Merleau-Ponty», 210, citing MERLEAU-PONTY, *Sens et non-sens*, 166.

[300] BARRAL, «Thomas Aquinas and Merleau-Ponty», 210.

[301] BARRAL, «Thomas Aquinas and Merleau-Ponty», 212.

[302] BARRAL, «Thomas Aquinas and Merleau-Ponty», 212, citing M. MERLEAU-PONTY, *The structure of behavior*, Beacon Press, Boston 1967, 209. The text is taken from the book's final section, entitled "The Relations of the Soul and the Body and the Problem of Perceptual Consciousness", 185-224.

importance of existence. However, ultimately Aquinas seeks to study being in order to reach God, whereas the phenomenologist in general "looks at reality in his own consciousness in order to discover ever new facets of that elusive truth which is forever challenging man's intellectual thirst"[303].

Frederick M. Jelly, O.P. – Merleau-Ponty can enrich Aquinas, but with caveats

In 1967, Frederick M. Jelly, O.P., authored the brief article "A Thomist Dialogues with Merleau-Ponty"[304]. The work gives no direct citations of Merleau-Ponty's work, one vague citation for Aquinas (ST I, q. 75), and the only footnote clarifies that the article "is especially based upon R. C. Kwant's *The Phenomenological Philosophy of Merleau-Ponty*, and A. Dondeyne's *Contemporary European Thought and Christian Faith*"[305]. After a brief introduction and biography of Merleau-Ponty, Jelly offers his summary of Merleau-Ponty's views. Of particular importance is that for the phenomenologist, "the human body is not a union of two opposites as matter and spirit or body and soul, but rather a unity, a single reality, a subject that does not derive its subjectivity from any other principle"[306]. Likewise, in contact with the world, "the body-subject is not just acted upon or merely an effect of its surroundings, but is rather the central part of a circular causality in the reciprocal relations of a gestalt. . . . The body-subject really creates its own environment, making it to have meaning for itself"[307]. As a result, Merleau-Ponty does not see the world as separated from the body, but rather "sees the body as organizing the world whose structure depends upon the body's structure, not as causing the world but giving it meaning"[308].

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[303] BARRAL, «Thomas Aquinas and Merleau-Ponty», 216.
[304] F. M. JELLY, «A Thomist Dialogues with Merleau-Ponty», *Dominicana* 52/Fall (1967): 242-250.
[305] JELLY, «A Thomist Dialogues», 250.
[306] JELLY, «A Thomist Dialogues», 244.
[307] JELLY, «A Thomist Dialogues», 245.
[308] JELLY, «A Thomist Dialogues», 246.

Indicating that Merleau-Ponty's vision prior to *The Visible and the Invisible* avoids both empiricism and idealism, the Dominican contends that the phenomenologist's "insights can enrich an understanding of the Thomistic theory of knowledge" and that his main contribution "seems to lie in providing basis for a more dynamic philosophical anthropology"[309]. However, he cautions that Merleau-Ponty's reduction of the body-soul union to the monist body-subject leaves a great deal to be desired, in particular because it lacks any explanation of the difference between humans and other animals.

Cornelio Fabro – The cogitative power explains being-in-the-body

There are surprisingly few references to Merleau-Ponty in Fabro's published works: for instance, *FP* contains no references to the French thinker at all, while *PP* has only one, relegated to a footnote[310]. The Italian philosopher did dedicate a substantial section to Merleau-Ponty in *Introduzione all'ateismo moderno*, concerning the atheism that Fabro sees emerging from his principles as expounded in *Sense and Non-sense*[311]. Of interest for our study, however, is Fabro's lengthy consideration of the works of Merleau-Ponty in his unpublished course notes for *Essere nel corpo*.

Essere nel corpo

In one of his last university courses, taught in the 1979-1980 academic year, Fabro examined the notion of "being-in-the-body". The section "Being-in-the-body as a negative tension of exteriority and interiority in existentialism" (71-88) contains a lengthy analysis of the thought of Merleau-Ponty (76-88), focusing on *The Visible and the Invisible*. Much of the text is simply Fabro's translations or paraphrases into Italian of the Merleau-Pontian work, with occasional insights and comments.

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[309] JELLY, «A Thomist Dialogues», 248, 249.

[310] See FABRO, *PP*, 343, n. 29, for a reference to *Phénoménologie de la Perception*. However, the bibliography lists both this text as well as *La structure du comportement*.

[311] See FABRO, *God in Exile*, 945-951, but especially 946, n. 13, where Fabro explicitly states his analysis follows *Sens et non-sens*.

At the end of his examination of *The Visible and the Invisible*, Fabro then presents an explanation of the cogitative power presented in an existentialist, even Merleau-Pontian, key:

> [The cogitative power] could be called the capacity for apprehending concrete values of "lived life," and it would be more precise to say of the "lived body," that is—if it can be expressed in this way—of the body in its positive and negative (that is, of pleasure and pain) reactions (relations) in its relations with the external physical world and with the physiological world itself both within and without the body in its own subjectivity, and above all in its positive and negative (that is, not only of pleasure and pain but even of fear, anxiety, hope, faith, impulses, reactions, fear, and trembling . . .) reactions (relations), that is, of the multiple attitudes of lived life within the self and in relation to its precise "life project." For these reasons, its object is not only just the "*formae*" but rather the "*intentiones*": the first regard the objective-formal aspect, the second the subjective-existential aspect. It is the phase of the concrete engagement of the existential self in its incommunicable singularity according to the whole range of its instances be it with respect to its being-in-the-world as well as with respect to being-in-the-body and with the very individual being in manifold whirl of the problems of existence, of the intertwining of knowing and will, of the never-settled feelings and never satisfied reflections[312].

The realm of the cogitative at its apex, as Fabro will declare just following this text, is the "ultimate peculiarity of the body's being"[313]. All of this, concludes Fabro, leads to an observation that is particularly important to understand our being-in-the-body: both our theoretical and practical intelligence are intertwined and collaborate between themselves and both have a close connection with our being-in-the-body. Hence, just as everyone has their own body, everyone also has their own experience of

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[312] FABRO, *Essere nel corpo*, 113: "Essa può essere detta la capacità di apprensione dei valori concreti della 'vita vissuta' e sarebbe più esatto dire del 'corpo vissuto' ossia - se così ci si può esprimere – del corpo nelle reazioni (relazioni) positive e negative (cioè di piacere e di dolore) nei suoi rapporti col mondo fisico esterno e con lo stesso mondo fisiologico all'interno del corpo come tale ma esterne alla coscienza nella sua propria soggettività, e soprattutto nelle sue reazioni (relazioni) positive e negative (cioè non soltanto di piacere e dispiacere ma anche di timore, ansia, speranza, fiducia, slancio, timore e tremore . . .) ossia dei molteplici atteggiamenti della vita vissuta all'interno dell'io e in rapporto al suo preciso 'progetto di vita.' Perciò il suo oggetto non sono più soltanto le 'formae' ma le 'intentiones,' quella riguardano l'aspetto oggettivo-formale, queste l'aspetto soggettivo-esistenziale. È la fase dello impegno concreto dell'Io esistenziale nella sua singolarità incomunicabile secondo tutta la gamma dei suoi casi sia rispetto all'essere-nel-mondo come rispetto all'essere-nel-corpo ed allo stesso essere individuale nel giro molteplice dei problemi dell'esistenza, dell'intrecciarsi del conoscere e del volere, dei sentimenti mai fermi e della riflessione mai soddisfatta".

[313] FABRO, *Essere nel corpo*, 114: "la peculiarità ultima dello essere nel corpo".

being-in-the-body. This entails, not only states such as sickness or health, but also private and public states: young or old, celibate or married, laborer or artist, religious or atheist, and so on. These possibilities serve to manifest the endless possibilities of the human spirit in its many manifestations.

Conclusions from the secondary literature

A review of the secondary literature indicates several attempts to bring Aquinas and Merleau-Ponty into dialogue. However, the review also highlights the importance of proper methodology, since a superficial appraisal of terms like "body" and "soul" could lead to hasty or even erroneous conclusions and to evaluations that convince neither Thomists nor phenomenologists. For this reason, we turn to our methodological considerations, following the lead of Agazzi.

Methodological considerations

Once again, in accordance with our methodology, 1) the different criteria that each discipline uses to gather its *facts* must be specified; 2) the *theoretical context* that each discipline accepts in order to explain those facts must be laid out, and; 3) based on these criteria and on this context, the concepts to be used must be *clearly defined*, in order to avoid equivocation[314]. Once these concepts have been defined, it must then be determined if and how they can be subsequently *linked* or *related* to Aquinas' terminology and concepts.

Methodology of Merleau-Ponty's phenomenology

In the introduction, it was argued that pure phenomenology is *subjective*, in that it concerns the reduction of objects of experience, considered in their totality, that is, context, import, history, and other such features, to their unchanging essence which can only be considered *qualitatively* and *inexactly* by the *Wesenschau*: as Merleau-Ponty contends, "the essences we may discover, when we force ourselves to think about

[314] AGAZZI, «El desafío», 248-9.

lived experience, are not, in Husserl's terms, 'exact essences' capable of an univocal determination. They are, rather, 'morphological essences,' which are inexact by nature"[315]. Since lived experience is personal, the objects of perception in their totality, the internal processes of reduction and application to reality and even the essence itself, are to be considered *subjective*. Indeed, phenomenological studies must rely on first-person data: self-reports and examinations of the subject's own processes.

These statements also reveal more than simply that Merleau-Ponty's method is subjective. Merleau-Ponty sees that those reductions, eidetic as well as transcendental, are necessarily limited or ambiguous. As he contends in the introduction to *The Phenomenology of Perception*, "[t]he most important lesson which the reduction teaches us is the impossibility of a complete reduction"[316]. This remark echoes throughout the French phenomenologist's work, even if not repeated verbatim. In the words of Christopher Pollard, part of Merleau-Ponty's critique of Husserl's understanding of reduction is that "the phenomenological 'perceived world' that the *epoché* and reduction brings into view for us is *intrinsically ambiguous*. This ambiguity that Merleau-Ponty describes is a direct consequence of our being embodied"[317]. In examining each of the reductions, we can consider this ambiguity which impedes a complete reduction, and the decisive orientation that it imposes on Merleau-Ponty's thought.

Eidetic reduction

It could be said the method of phenomenology in general is *reductive*, as it begins from experience and progresses to generalizations. Such an assertion can be found in Merleau-Ponty as regards the eidetic reduction. However, in his particular understanding of the eidetic reduction Merleau-Ponty recognizes that he goes beyond

[315] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 67.
[316] MERLEAU-PONTY, *Phenomenology of Perception*, xiv.
[317] C. POLLARD, «What is Original in Merleau-Ponty's View of the Phenomenological Reduction?», *Hum Stud* 41/3 (2018), in 10.1007/s10746-018-9471-y [16-12-2024], 401. Emphasis in original.

the letter of Husserl, although the French phenomenologist maintains it is implicit in Husserl's thought, as he writes:

> In presenting the matter as I have, I am pushing Husserl further than he wished to go himself. He never expressly recognized the fundamental homogeneity of these two modes of knowledge, the inductive and the essential. He never admitted that in the last analysis they were indiscernible and simply differed in degree. Nevertheless his notion of an experienced essence, or an eidetic experience, contains in germ the consequence that I have just drawn from it[318].

These "two modes of knowledge" to which Merleau-Ponty refers are induction *stricte dicta* and the "phenomenological *Wesenschau*", the grasping of the essence[319]. The first is "a process of intellectual analysis whose verification consists in the total, or at least sufficient, clarity which the group of concepts worked out in this way bring to the given phenomena"[320], such as the consideration of real examples of water boiling at 100° C. The second:

> This intuition of essences, like induction, as we have seen, is based on facts. The difference is that *Wesenschau* is based on the *imaginary "free variation" of certain facts.* In order to grasp an essence, we consider a concrete experience, and then we make it change in our thought, trying to imagine it as effectively modified in all respects. *That which remains invariable* through these changes is the essence of the phenomena in question[321].

In other words, while induction considers enough real cases to obtain a law or rule regarding something, the *Wesenschau* takes one example and manipulates it in the imagination, changing as much as it can and thus leaving or producing an unchanging, invariable essence. However, Merleau-Ponty indicates that in the process of induction *Wesenschau* is implied, since, even if several real examples are considered, it is assumed the phenomenon is applicable even to the cases not considered. E.g., if a subject affirms that water boils at 100° C after experimenting with five bottles of water of a pack of 24, in making the induction the subject assumes or imagines that such a property will remain unvaried in the remaining 19 bottles.

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[318] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 72.

[319] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 70.

[320] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 70. Emphasis in the original.

[321] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 70.

Merleau-Ponty affirms that, since the real and the possible are united in the human subject, there is no difference between induction and *Wesenschau* except in terms of degree: "It is human reality which now emerges as *the locus of the Wesenschau*. It is in becoming conscious of myself as I am that I am able to see essences, and in this context the real and the possible are not distinct"[322]. The notion that the human reality is where the *Wesenschau* takes place is more significant than might appear at first, because human reality necessarily provides only a limited, imperfect perspective. Again, in the words of Merleau-Ponty, "the essences we may discover … are not, in Husserl's terms, 'exact essences' capable of an univocal determination. They are, rather, 'morphological essences,' which are inexact by nature"[323]. As Pollard explains, this is because "spatio-temporal objects, as we perceptually experience them, are never fully determinate but neither are they simply indeterminate. Instead they are a movement from indeterminacy to determinacy that we build through a series of related 'profiles', as we move around and view the object"[324].

This ambiguity also stems from the body: again, as Pollard notes, "these ambiguous objects are a mirror of the constitution of the body itself, which is never fully constituted as an object open to our gaze. This is because the body is that which gives us an opening onto objects as such. And so the status of the body is ambiguous"[325]. The body can also be viewed as an object, but the more we focus on perceiving objects, the less the body becomes visible. As a result, writes Pollard, "the phenomenology of the lived body, by revealing this intimate and intricate process of reciprocal constitution, shows how in our experience the body is never fully 'object' or fully 'subject' and, by connection, our experience is never fully 'inner' experience or fully 'outer' experience"[326].

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[322] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 73.
[323] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 67.
[324] POLLARD, «What is Original in Merleau-Ponty's View», 401.
[325] POLLARD, «What is Original in Merleau-Ponty's View», 402.
[326] POLLARD, «What is Original in Merleau-Ponty's View», 402.

Pollard contends that the French phenomenologist's novelty here is often overlooked because of the "less than crystal clear style" he uses to present his methodology in *The Phenomenology of Perception*[327]. Basing himself on Merleau-Ponty's text, Pollard notes that:

> We live an ambiguity that defies the traditional dualistic categories, a pure ego outside space (Intellectualism) or a pure object like any other object (Empiricism). Merleau-Ponty captures the way that we are fundamentally ambiguous between 'mind' and 'body' in his account of humans as 'body-subjects'. And so, on his account, the phenomenology of the 'perceived world' reveals that 'ambiguity', in Merleau-Ponty's specific sense, is 'of the essence of human existence' (Merleau-Ponty 2002: 196)[328].

In other words, Merleau-Ponty offers two reasons why the eidetic reduction is ambiguous: first, because our experience of objects can only be partial or ambiguous, and, second, because our experience of objects is mediated by the body which, in turn, can be viewed as an ambiguous object. It is neither completely subject nor completely object. As a result, the eidetic reductions can never be complete; it will always remain ambiguous and partial because of the body being in the world[329]. In Pollard's words, "when we try to perform the *epoché* we find that we are confronted with an irreducible body-world relation, which is the source of our having a 'primordial faith' that there exists a subject-independent world of spatio-temporal objects"[330]. Merleau-Ponty will "appropriate the Heideggerian ontological term 'being-in-the-world' to capture the

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[327] POLLARD, «What is Original in Merleau-Ponty's View», 408.

[328] POLLARD, «What is Original in Merleau-Ponty's View», 402.

[329] Indeed, Dan Zahavi says precisely this in D. ZAHAVI, *The Oxford Handbook of the History of Phenomenology*, Oxford University Press 2018, 664: "Right at the outset of this work, Merleau-Ponty claims that there is no such thing as a complete reduction (Merleau-Ponty 2012: lxxvii). The idea of a complete reduction presupposes that everything that appears can be traced back to a constituting consciousness that is transparent to itself and, hence, fully accessible to reflection (Merleau-Ponty 2012: lxxiv, 64). Merleau-Ponty, on the contrary, claims that the reduction always remains incomplete, because in his view the subject that perceives a world is a body subject, and according to him both this subject and the world that appears for this subject are in a certain sense opaque (e.g., Merleau-Ponty 2012: lxxv, 62, 228, 265, 448). It is for this reason that Merleau-Ponty characterizes the target of phenomenological description as a transcendental field. As Merleau-Ponty writes, 'of all philosophies, only phenomenology speaks of a transcendental field. This word signifies that reflection never has the entire world and the plurality of monads spread out and objectified before its gaze' (Merleau-Ponty 2012: 62)".

[330] POLLARD, «What is Original in Merleau-Ponty's View», 408.

fundamental phenomenological and ontological structure of world-relatedness"[331]. The precise differences between the Heideggerian use of the term and the Merleau-Pontian usage are debated by scholars, but as will be shown, for Merleau-Ponty this being-in-the-world involves a primordial and irreducible contact with the world.

Transcendental reduction

Bearing in mind these considerations of the eidetic reduction, concerning the transcendental reduction, Merleau-Ponty departs from, or rather advances upon his mentor precisely because of the French phenomenologist's understanding of being in the world. If the self in the world can only have an ambiguous experience of the world and of its body, consciousness of self should likewise be ambiguous. In the words of Merleau-Ponty:

> It is not a matter of duplicating human consciousness with some absolute thought which, from outside, is imagined as assigning to it its aims. It is a question of recognizing consciousness itself as a project of the world, meant for a world which it neither embraces nor possesses, but towards which it is perpetually directed—and the world as this pre-objective individual whose imperious unity decrees what knowledge shall take as its goal…. Our relationship to the world, as it is untiringly enunciated

[331] POLLARD, «What is Original in Merleau-Ponty's View», 401. However, as Pollard cautions in a footnote, "Although Heidegger's '*in-der-Welt-sein*' is also rendered as 'being-in-the-world' in the Macquarie and Robinson translation (Heidegger 1962), we should not automatically assume that Merleau-Ponty's term is identical to Heidegger's". Regarding this, D. WEHINGER, «"The Union of the Soul and the Body": Merleau-Ponty on Being in the World», *Hum Stud* (2024), in 10.1007/s10746-024-09740-7 [16-12-2024], also affirms in ftn. 5 "Merleau-Ponty obviously adopts the term 'being in the world' from Heidegger". How close these two notions of being-in-the-world, i.e., that of Merleau-Ponty and that of Heidegger, are depends on how Heidegger is interpreted. Wehinger notes that Merleau-Ponty's notion of being in the world seems broader than Heidegger's according to Dreyfus' interpretation. Yet he adds, "It should be noted, however, that Dreyfus' interpretation of Heidegger is by no means undisputed. Thus, there are other interpretations of Heidegger that seem to be much closer to what I take to be Merleau-Ponty's position (see, e.g., Buchanan, 2008)". Likewise, in his translator's introduction, Donald A. Landes notes that "the original translation of Heidegger's *In-der-Welt-sein* into French was *être dans le monde*, yet Merleau-Ponty recognized that the French *dans* ("in") perhaps covered over some of the important richness of Heidegger's insight. His shift of the phrase to *à* (in the contraction *au*) introduces a rich set of relations, since this preposition can be translated variously as 'in,' 'to,' 'of,' 'at,' 'toward,' and 'belonging to'". See MERLEAU-PONTY, *Phenomenology of Perception*, Routledge 2013, xlix.

> within us, is not a thing which can be any further clarified by analysis; philosophy can only place it once more before our eyes and present it for our ratification[332].

Pollard summarizes the French phenomenologist's position as follows:

> Merleau-Ponty argues that a phenomenological approach reveals us as necessarily situated in a world that is opaque and thus necessarily exceeds our attempt to capture it in theoretical thought. All our acts of reflection are subtended by a 'primordial' perceptual relationship with pre-objective being, the lived background against which those acts stand out and on which those acts are ultimately grounded. The subject is opaque to itself as a result of the limits intrinsic to a reflection that tries to grasp its own 'unreflective' pre-objective background, a background that can never, in principle, be fully foregrounded[333].

The early Husserl of the *Cartesian Meditations* maintained that the transcendental reduction effectively "brackets the objective world", and, "in performing the reduction, the phenomenologist establishes himself as a 'disinterested spectator'"[334]. In this way, man discovers the transcendental ego. In *The Phenomenology of Perception*, Merleau-Ponty points out his differences with Husserl, noting that:

> We have discovered, with the natural and social worlds, the truly transcendental, which is not the totality of constituting operations whereby a transparent world, free from obscurity and impenetrable solidity, is spread out before an impartial spectator, but that ambiguous life in which the forms of transcendence have their *Ursprung*, and which, through a fundamental contradiction, puts me in communication with them, and on this basis makes knowledge possible[335].

To this text, the French phenomenologist appends a footnote explaining both the development of Husserl's thought as well as his objections to it:

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[332] MERLEAU-PONTY, *Phenomenology of Perception*, xvii-xviii.

[333] POLLARD, «What is Original in Merleau-Ponty's View», 410.

[334] R. SCHMITT, «Husserl's Transcendental-Phenomenological Reduction», *Philosophy and Phenomenological Research* 20/2 (1959), in 10.2307/2104360 [17-12-2024], 239. The citation is from the Second Meditation of E. HUSSERL, *Cartesian Meditations*, Martinus Nijhoff, The Hague 1960, 35. The text that interests us in the Husserlian text is this: "If the Ego, as naturally immersed in the world, experiencingly and otherwise, is called '*interested' in the world*, then the phenomenologically altered — and, as so altered, continually maintained — attitude consists in a *splitting of the Ego:* in that the phenomenological Ego establishes himself as *"disinterested onlooker"*, above the naïvely interested Ego. That this takes place is then itself accessible by means of a new reflection, which, as transcendental, likewise demands the very same attitude of looking on *'disinterestedly'*".

[335] MERLEAU-PONTY, *Phenomenology of Perception*, 364-365.

> Husserl in his last period concedes that all reflection should in the first place return to the description of the world of living experience (*Lebenswelt*). But he adds that, by means of a second 'reduction', the structures of the world of experience must be reinstated in the transcendental flow of a universal constitution in which all the world's obscurities are elucidated. It is clear, however, that we are faced with a dilemma: either the constitution makes the world transparent, in which case it is not obvious why reflection needs to pass through the world of experience, or else it retains something of that world, and never rids it of its opacity. Husserl's thought moves increasingly in this second direction, despite many throwbacks to the logicist period—as is seen when he makes a problem of rationality, when he allows significances which are in the last resort 'fluid' (*Erfahrung und Urteil*, p. 428), when he bases knowledge on a basic δοξα[336].

Hence, as we will see, here as in other aspects Merleau-Ponty understands his project as in line with the development of Husserl's own thought, namely, that the subject always "retains something of that world, and never rids it of its opacity". The transcendental reduction can never be a complete reduction; rather, man is embedded in the world and must live in it. He can never fully extract himself from it, and hence to speak of a disinterested onlooker is contradictory: if he is truly disinterested, he does not need the world, but, if he needs the world, then he can never truly be disinterested. Rather, as Merleau-Ponty writes elsewhere, "The [transcendental] reduction no longer involves a return to ideal being, but brings us back to the spirit of Heraclitus, to an interweaving of horizons, to an open Being"[337].

Theoretical context of the phenomenology of Maurice Merleau-Ponty

Next, we must consider the *theoretical context* of Merleau-Ponty's phenomenology, that is, the foundations of his form of phenomenology as regarding the underlying philosophical and psychological principles, so that this background can be considered and borne in mind for the integration that we propose, namely, into a Thomistic *Weltanschauung*. It should be noted, however, that Merleau-Ponty is a very original thinker. After noting that Merleau-Ponty read Husserl, Sartre, Scheler, Heidegger, and Gestalt psychology, John Wild and James M. Edie comment as follows:

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[336] MERLEAU-PONTY, *Phenomenology of Perception*, 365, n. 1.

[337] M. MERLEAU-PONTY, «Philosophy as Interrogation» in *In Praise of Philosophy and Other Essays*, Northwestern University Press 1988, 176.

> [Merleau-Ponty] took over insights from all these sources, but he became no man's disciple. He thought them through for himself and used them to support and to bring out further insights of his own. Nurtured on this ground, he made important contributions to the phenomenological investigation of human existence in the life-world and its distinctive structures. We cannot help but think of him now as a free and independent thinker, even a revolutionary thinker of our time, whose depth and originality was expressed not only in his words and writings but also in his life[338].

We can consider three foundations which are important for our examination (acknowledging that there are other influences as well): the philosophy of Edmund Husserl, Gestalt psychology, and the work of Henri Bergson[339].

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[338] John Wild and James M. Edie's translators' preface to M. MERLEAU-PONTY, *In Praise of Philosophy and Other Essays*, Northwestern University Press 1988, xiv-xv.

[339] Other influences include Jean-Paul Sartre, Martin Heidegger, and Gabriel Marcel. The introduction to the English translation of *The Structure of Behavior* summarizes, perhaps simplistically, Merleau-Ponty's dependence and rejection of several thinkers: "The task of exploring the human life-world as it is lived, which was inaugurated by Husserl—though only just begun—has already arrived at results which have been inter-subjectively confirmed and which have, in a sense, become common property. Thus Merleau-Ponty has taken over from Husserl the general conception of the phenomenological method and the well-known analysis of perception through profiles (*Abschattungen*); from Sartre, with important qualifications, the notion of consciousness as involving negation and distance; from Heidegger many aspects of his analysis of man as being-in-the-world; and from Scheler the notion of structural levels. But he has rejected Husserl's notion of the transcendental ego, Sartre's metaphysical dualism of the *en soi* and the *pour soi*, Heidegger's hypostatization of Sein, and Scheler's metaphysical pantheism": See the foreword of John Wild in M. MERLEAU-PONTY*, The structure of behavior*, Beacon Press, Boston 1967, xiv. Likewise, see E. MATTHEWS, *Philosophy of Merleau-Ponty*, Routledge 2014, 4-5: "Heidegger had featured in Gurvitch's lectures on recent German philosophy, and in this sense must have entered Merleau-Ponty's philosophical consciousness. But there are not many explicit references to him, at any rate in Merleau-Ponty's earlier writings; we can infer an influence mainly from circumstantial evidence, such as the use of the central Heideggerian term 'being-in-the-world' as a similarly central concept in Merleau-Ponty's thought, and the discussions of Being and recognition of the need for an ontology as well as a phenomenology in the posthumously published late works such as *The Visible and the Invisible*"; "It was in Marcel that Merleau-Ponty found what was to be one of his own key ideas – that our subjectivity is essentially *embodied* or *incarnate*. He also shared Marcel's Bergsonian conception of philosophy as 'concrete'. But Marcel's presentation of these ideas, as of his philosophy generally, was much more literary and discursive than Merleau-Ponty's, and correspondingly much less analytic and related to contemporary science". Regarding Jean-Paul Sartre, see James M. Edie's introduction to M. MERLEAU-PONTY, *The primacy of perception*, Northwestern University Press, Evanston, Illinois 1964. xviii: "Finally, throughout his writings, Merleau-Ponty's chief, though usually silent, interlocutor is his lifelong friend-enemy, Jean-Paul Sartre. Sartre's radical dichotomization of reality into being-in-itself and being-for-itself poses the fundamentally insoluble problem of the dialectical (or 'ambiguous') interrelations which *in fact* pertain between consciousness and the world, between consciousness and the body".

The philosophy of Edmund Husserl

The relationship between the thought of Edmund Husserl and that of Merleau-Ponty has been and continues to be subject to much debate[340]. What is certain is that Merleau-Ponty attended lectures on early phenomenological thought given by Georges Gurvitch at the École Normale Supérieure as well as the lectures given by Husserl himself in Paris in 1929[341]. However, what was decisive for Merleau-Ponty's intellectual development was his examination of Husserl's later works, which took place in 1939 (even before the publication of *The Structure of Behavior*). As Eric Matthews notes:

> Having read about Husserl's later development in a journal article, Merleau-Ponty went to the Husserl Archive in Louvain in Belgium to read and study the later works of Husserl, which were then unpublished. . . . This reading convinced Merleau-Ponty that, in his later doctrine of the "life-world" [*Lebenswelt*], Husserl's conception of philosophy had taken a decisive new turn; it was this later version that was to shape Merleau-Ponty's own conception of phenomenology[342].

As seen earlier, on occasions Merleau-Ponty contends that he is simply bringing the Husserlian vision to completion[343]. Nevertheless, while scholars continue to study whether Merleau-Ponty completes Husserl's philosophy or radically alters it, it is

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[340] For instance, see the volume T. TOADVINE – L. EMBREE (edd.), *Merleau-Ponty's reading of Husserl*, Springer Science & Business Media, Dordrecht 2002. In particular, see the chapter by Dan Zahavi, «Merleau-Ponty on Husserl: A Reappraisal».

[341] See MATTHEWS, *Philosophy of Merleau-Ponty*, 2-3.

[342] MATTHEWS, *Philosophy of Merleau-Ponty*, 3. For a detailed examination of this, see H. L. VAN BREDA, «Maurice Merleau-Ponty et les Archives-Husserl à Louvain», *Revue de Métaphysique et de Morale* 67/4 (1962), 410–430. As Zahavi notes, "In fact, when he arrived in Louvain in April 1939, he was the very first outsider to visit the Husserl-Archives, and his interest in Husserl's research manuscripts persisted until the very end. The reason for this was undoubtedly that he saw the main thrust of Husserl's work to be contained in these manuscripts. As he wrote in a letter from 1942: 'After all, Husserl's philosophy is almost entirely contained in the unpublished manuscripts'": D. ZAHAVI, «Merleau-Ponty on Husserl: A Reappraisal», in TOADVINE –EMBREE (edd.), *Merleau-Ponty's reading of Husserl*: 6.

[343] See the previous discussion from MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The Primacy*, 70. Likewise, there is the essay on Husserl, «The Philosopher and His Shadow» published in M. MERLEAU-PONTY, *Signs (SPEP)*, Northwestern University Press 1987: 159-181.

beyond doubt that Husserl's work, and especially his later thought, greatly influenced Merleau-Ponty's even from the early stages of his writings[344].

Gestalt psychology

Merleau-Ponty's works show great familiarity with the science contemporary to his time, and in particular there are many references to Gestalt psychology; indeed, Merleau-Ponty was "intimately familiar with the Gestalt psychology of the 1920's and 1930's"[345]. For instance, in *The Structure of Behavior*, the French phenomenologist applies the studies of Gestalt psychologists to show that reflexes, although presumed to be simple and basic responses, are in fact based upon a context in which the creature finds itself; they are a whole coordinated series of reactions[346]. Similarly, in *The Phenomenology of Perception*, "Merleau-Ponty launches a Gestalt theorist argument against atomistic theories of sensation" such as those posited by Hume and Locke[347]. As Sara Heinämaa notes, Merleau-Ponty relies on the experimental data of the Berlin School "when arguing against the notion that the perceived thing is composed of simple and independent sensory units, i.e., sense-qualia"[348].

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[344] E.g., in ZAHAVI, «Merleau-Ponty on Husserl: A Reappraisal», in TOADVINE –EMBREE (edd.), *Merleau-Ponty's reading of Husserl*, Zahavi cites numerous Merleau-Ponty scholars who downplay or outright reject the continuity of the French philosopher's thought with that of the founder of phenomenology. These include G. B. MADISON, *The Phenomenology of Merleau-Ponty*, Ohio University Press, Athens, OH 1981; M. C. DILLON, *Merleau-Ponty's ontology*, Northwestern University Press, Evanston, Ill 1997; and P. DWYER, *Sense and subjectivity*, BRILL, Leiden 1990. For an interesting article regarding Merleau-Ponty's approach to phenomenology within this context, see his article M. MERLEAU-PONTY «What is Phenomenology?», *CrossCurrents* 6/1 (1956), 59–70.

[345] John Wild and James M. Edie's Translators' preface to MERLEAU-PONTY, *In Praise of Philosophy and Other Essays*, xiv.

[346] See MERLEAU-PONTY, *The structure of behavior*, Pt. 1, Reflex Behavior, Section 3, «The Interpretation of the Reflex in Gestalt Theory», 33-46.

[347] S. HEINÄMAA, «Phenomenological Responses to Gestalt Psychology» in S. HEINÄMAA – M. REUTER (edd.), *Psychology and Philosophy: Inquiries into the Soul from Late Scholasticism to Contemporary Thought*, Springer Science & Business Media 2009, 227. This chapter is particularly valuable for its summary of the development of the different branches of *Gestalttheorie*, and for the influence of these on both Husserl and Merleau-Ponty.

[348] HEINÄMAA, «Phenomenological Responses to Gestalt Psychology» in HEINÄMAA – REUTER (edd.), *Psychology and Philosophy*, 227.

As important as these results are for Merleau-Ponty, the French phenomenologist also argues that they are simply a starting point. In an early article (from 1933/34), he notes that Gestalt theory has given rise to important questions regarding the whole theory of knowledge, questions which Gestalt psychology has barely touched. As a result, in his conclusion he states: "We must look, we believe, in a different direction, for a very different solution"[349]. In the words of Donald Landes, what Merleau-Ponty has seen is that Gestalt psychologists might be able to overcome the "schism between empiricism and intellectualism". However, this psychological school misunderstood the radical nature of consciousness, as Merleau-Ponty would contend in 1946:

> Ultimately [the Gestalt psychologists] consider the structures of the perceived world as the simple result of certain physical and physiological processes which take place in the nervous system and completely determine the *gestalten* and the experience of the *gestalten*. The organism and consciousness itself are only functions of the external physical variables. Ultimately the real world is the physical world as science conceives it, and it engenders our consciousness itself.… When, later on, Gestalt psychology tried to explain itself—in spite of its own discoveries—in terms of a scientistic or positivistic ontology, it was at the price of an internal contradiction which we have to reject[350].

As time passes, this critique continues and becomes even more refined. In the 1961 essay «Phenomenology and the Sciences of Man» Merleau-Ponty quotes Husserl in the postscript to *Ideas* as saying:

> Both atomistic psychology and Gestalt psychology remain in the same sense basically psychological naturalisms which, from their use of the expression 'internal sense' can also be called sensualisms. There is no difference here, in principle, between 'atomistically' accumulating psychic data like grains of sand and considering them as parts of totalities held together by some empirical or *a priori* necessity, but nevertheless made up of such parts. There is no essential difference between saying with the associationists, 'Consciousness is a sum of sensations and images,' and with

[349] M. MERLEAU-PONTY, «The Nature of Perception», *Research in Phenomenology* 10 (1980), 17. This English translation is unclear regarding the date of publication of the original, but Donald A. Landes gives 1933/34 in D. A. LANDES, *The Merleau-Ponty dictionary*, A&C Black, London 2013, 2.

[350] M. MERLEAU-PONTY, «The Primacy of Perception and its Philosophical Consequences», in *The primacy of perception*, Northwestern University Press, Evanston, Illinois 1964, 23-24. This essay is an address given to the *Société française de philosophie* on November 23, 1946 (see 12, ftn. 1). The text is cited in LANDES, *The Merleau-Ponty dictionary*, 88.

> the Gestaltists, 'consciousness is a totality in which the elements have only an inseparable existence'[351].

To this, Merleau-Ponty adds his own conclusion, "So long as one does not radically reform the notion of totality so as to think of consciousness as a totality with no equivalent at all among the things of nature, one is still trapped in naturalism and psychologism"[352]. This radical reform is a major part of the Merleau-Pontian project.

Henri Bergson

Another thinker who influenced Merleau-Ponty, although more as a foil, was Henri Bergson. Despite the chronological overlap of the lives, and that Merleau-Ponty gave a respectful reading of his thought during the inaugural lecture when Merleau-Ponty was given, as Bergson had been before him, a chair at the Collège de France, the direct influence of Bergson appears limited: "For all this", contends Matthews, "all that Merleau-Ponty seems to have taken from Bergson (important though it is) is the insistence on starting from immediate experience rather than from theoretical explanations of it, which reinforced the lessons derived from his reading of Husserl's phenomenology"[353].

As a result, although Bergson often appears by name in Merleau-Ponty's work, it is often to highlight a difference of opinions. For instance, in *The Structure of Behavior*, while noting the activity of a living being goes behind merely chemical reactions and nerve impulses, Merleau-Ponty nevertheless criticizes the notion of an *élan vital*, with explicit reference to Bergson:

> These remarks cannot serve to justify a vitalism, however—even the refined vitalism of Bergson. The relation of the vital élan to that which it produces is not conceivable,

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[351] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The primacy of perception*, 57-58.

[352] MERLEAU-PONTY, «Phenomenology and the Sciences of Man», in *The primacy of perception*, 58.

[353] MATTHEWS, *Philosophy of Merleau-Ponty*, 4. This lecture, with its "appropriately respectful comments on [Bergson's] philosophy", has been published, as Matthews notes, as a book: M. MERLEAU-PONTY, *Éloge de la philosophie*, Librairie Gallimard, Paris 1953. Available in English as *In Praise of Philosophy and Other Essays*. Another lecture given in honor of Bergson in 1959 can be found in MERLEAU-PONTY, *Signs (SPEP)*, 182-191, in the chapter «Bergson in the Making».

> it is magical. Since the physico-chemical actions of which the organism is the seat cannot be abstracted from those of the milieu, how can the act which creates an organic individual be circumscribed in this continuous whole and where should the zone of influence of the vital elan be limited[354]?

Merleau-Ponty's critique stems from this attempt to separate or carve out a "living zone" in the living. It is the whole, the milieu of subject and environment in which life emerges and is submerged, not some isolated portion of being that is animated by the elan vital. Current research continues to investigate the similarities and differences between the thought of Bergson and Merleau-Ponty, but in general the comment of Wild and Edie rings true for Bergson and the other influences: "He took over insights from all these sources, but he became no man's disciple"[355].

Key concepts of the phenomenology of Maurice Merleau-Ponty

The last methodological concern is to clearly define the concepts to be used. Since our aim is to examine perception and its objects, the first concept to be considered is that of perception as understood by Merleau-Ponty, as well as other notions that are related to and flow from this understanding.

Three preliminary notes should be given regarding the works of Merleau-Ponty, in particular, the three books widely considered to be his most important: *The Structure*

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[354] MERLEAU-PONTY, *The structure of behavior*, 158.

[355] John Wild and James M. Edie's translators' preface to MERLEAU-PONTY, *In Praise of Philosophy and Other Essays*, xiv. Examples of this research include: M. R. TAPINÇ, «Perception and Time-Experience in Merleau-Ponty and Bergson», 23 (2014), in 10.20981/kuufefd.87428 [4-10-2024]; A. AL-SAJI, «Merleau-Ponty And Bergson: Bodies of Expression and Temporalities in the Flesh», 45/Supplement (2001), in 10.5840/philtoday200145supplement13 [4-10-2024], 110–123; D. BELOT, ««Un tableau de l'histoire humaine»: Merleau-Ponty au-delà de Bergson», Tome 69/1 (2006), in 10.3917/aphi.691.0079 [4-10-2024], 79–100; B.-A. SCHARFSTEIN, «Bergson and Merleau-Ponty: A Preliminary Comparison», *The Journal of Philosophy* 52/14 (1955), in 10.2307/2021428 [4-10-2024]; A. AL-SAJI, «The Temporality of Life: Merleau-Ponty, Bergson, and the Immemorial Past», *The Southern J of Philosophy* 45/2 (2007), in 10.1111/j.2041-6962.2007.tb00048.x [4-10-2024], 177–206; D. OLKOWSKI, «In search of lost time, Merleau-Ponty, Bergson, and the time of objects», *Cont Philos Rev* 43/4 (2010), in 10.1007/s11007-010-9152-7 [4-10-2024], 525–544; E. LISCIANI PETRINI, «Fuori dalla persona. L'impersonale in Bergson, Merleau-Ponty, Deleuze», *Δαίμων. Revista Internacional de Filosofía* 55 (2012), 73–88.

of Behavior, *The Phenomenology of Perception* (generally considered his masterpiece), and *The Visible and the Invisible*[356]. Firstly, the first two books are very similar in content, so much so "that Merleau-Ponty has been accused of having written the same book twice", apparently as part of the requirement to receive his *Doctorat d'Etat*[357]. However, such an appraisal would be superficial, since scholars have noted important differences between them: for instance, *The Structure of Behavior* has been called, "first and foremost, a theory of the human organism and only secondarily a theory of perception", whereas *The Phenomenology of Perception*, "as its title implies, first and foremost, a theory of perception and only secondarily a theory of the human organism"[358]. Both aspects are closely interwoven in Merleau-Ponty's work.

Secondly, *The Visible and the Invisible* is Merleau-Ponty's last work, yet only the first part was written before the philosopher's unexpected death on May 3, 1961[359]. Even the proposed structure of the text is unclear, and hence the interpretations of the work are likewise unclear. As mentioned earlier, some scholars (e.g., Kwant) see in this work a complete break with Merleau-Ponty's earlier thought, while others contend "it would be more correct to say that *The Visible and the Invisible* represents a continuation or extension of earlier directives rather than a reversal"[360].

Thirdly, and finally, we do well to recall what was discussed earlier regarding Merleau-Ponty's phenomenology: the perceiver is necessarily embodied and necessarily embedded in the world. As a being-in-the-world, the world provides the perceiver with a Heraclitan kaleidoscope that he encounters only by means of his body.

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[356] Cf. MATTHEWS, *Philosophy of Merleau-Ponty*, 7.

[357] C. E. MACANN, *Four phenomenological philosophers*, Routledge, London 1993, 159.

[358] MACANN, *Four phenomenological philosophers*, 160. Macann also cites the introduction by Alphonse de Waelhens to the French edition of *The Structure of Behavior* as an initial scholarly recognition of these differences. However, Macann insightfully indicates the reason for the similarity: "Needless to say, however, for Merleau-Ponty these two sides of a more general conception of human reality are indissociably interwoven, perception being the primary function of the human organism and the human body constituting the only adequate foundation for a theory of perception".

[359] See MERLEAU-PONTY, *The visible and the invisible*. The editorial notes of the English edition (xxxiv – xxxix) provides concise explanation of the state and structure of the text.

[360] MACANN, *Four phenomenological philosophers*, 160.

With these considerations in mind, we can consider some key Merleau-Pontian concepts. Merleau-Ponty himself laid out a structure for understanding these concepts as he wrote, "My first two works [i.e., *The Structure of Behavior* and *The Phenomenology of Perception*] sought to restore the world of perception. My works in preparation aim to show how communication with others, and thought, take up and go beyond the realm of perception which initiated us to the truth"[361]. For this reason, we will consider the following: perception (the process whereby the perceiver enters into contact with the world), the body (the means by which the perceiver contacts that world and, conversely, is contacted by it), the Life-world (the world that is perceived), the past, language, and body scheme (specific consequences or means of being-in-the-world, and particularly of being in a world of intersubjective experience which goes beyond the realm of perception).

Perception

With works entitled *The Phenomenology of Perception*, *The Primacy of Perception,* and "The World of Perception"[362], it is undeniable that Merleau-Ponty was fascinated by the problem of perception. Indeed, Merleau-Ponty himself wrote, "My first two works [i.e., *The Structure of Behavior* and *The Phenomenology of Perception*] sought to restore the world of perception"[363]. In the preface to *The Phenomenology of Perception*, we catch a glimpse of what this "world of perception" might entail: "Perception is not a science of the world, it is not even an act, a deliberate taking up of a position; it is the background from which all acts stand out, and is presupposed by them"[364]. Indeed, "true philosophy consists in relearning to look at the world, and in

[361] MERLEAU-PONTY, «An Unpublished Text by Maurice Merleau-Ponty: *A Prospectus of His Work*», in *The primacy of perception*, 3.

[362] The title of a book, although the book itself is a collection of radio addresses given by Merleau-Ponty in 1948. See MERLEAU-PONTY, *The World of Perception*.

[363] MERLEAU-PONTY, «An Unpublished Text by Maurice Merleau-Ponty: *A Prospectus of His Work*», in *The primacy of perception*, 3.

[364] MERLEAU-PONTY, *Phenomenology of Perception*, xi.

this sense a historical account can give meaning to the world quite as 'deeply' as a philosophical treatise"[365].

Perception-as-background consists necessarily of the objects we experience: "Our perception ends in objects, and the object once constituted, appears as the reason for all the experiences of it which we have had or could have"[366]. Yet, in the early *Structure of Behavior*, Merleau-Ponty's statement sets the tone for understanding how those objects come to be perceived: "One does not construct a perception as one does a house; by assembling material gotten from the sense and the material gotten from memory; one does not explain it as an event of nature by situating it at the confluence of several causal series—sensory mechanisms and mnemonic mechanisms"[367]. This statement clearly shows the French phenomenologist's opposition to the empiricist understanding of perception. Indeed, the acclaimed "restoration of the world of perception" comes in part through Merleau-Ponty's firm resistance to what he terms both the empiricist and intellectualist interpretations of this world: regarding these, "both take the objective world as the object of their analysis, when this comes first neither in time nor in virtue of its meaning; and both are incapable of expressing the peculiar way in which perceptual consciousness constitutes its object. Both keep their distance in relation to perception, instead of sticking closely to it"[368]. We will address these general observations, but only after we first consider Merleau-Ponty's criticisms of these two approaches.

The first, the empiricist view, which would reduce perception to the mere mechanical reception of sense qualities, has been disproven by Gestalt psychology, which shows the world is organized above and beyond those mere qualities. To focus only on sensation would be an error; indeed, "once introduced, the notion of sensation distorts any analysis of perception…. If we admit 'sensation' in the classical sense, the meaning of the sense-datum can be found only in further sensations, actual or

[365] MERLEAU-PONTY, *Phenomenology of Perception*, xx.
[366] MERLEAU-PONTY, *Phenomenology of Perception*, 67.
[367] MERLEAU-PONTY, *The structure of behavior*, 198.
[368] MERLEAU-PONTY, *Phenomenology of Perception*, 26.

possible"[369]. "The sensible quality, far from being co-extensive with perception, is the peculiar product of an attitude of curiosity or observation"[370]. This is not to say sensible qualities have no role in perception; rather, the difficulty is that perception is much more than simply these qualities. "Sensations, 'sensible qualities' are then far from being reducible to a certain indescribable state or *quale*; they present themselves with a motor physiognomy, and are enveloped in a living significance"[371]. "Now, though perception brings together our sensory experiences into a single world, it does not do so in the way that scientific colligation gathers together objects or phenomena, but in the way that binocular vision grasps one sole object"[372]. As Merleau-Ponty affirms, if "all consciousness is consciousness of something", it is precisely that: awareness or perception of *some thing*, not simply isolated elements[373]. "If, on looking at a mountain scene," contends the French phenomenologist, "we adopt a critical attitude and isolate part of the field, then the colour itself changes, and this green, which was meadow green, when taken out of its context, loses its thickness and its colour as well as its representative value. A colour is never merely a colour, but the colour of a certain object, and the blue of a carpet would never be the same blue were it not a woolly blue"[374]. In other words, these sensations are necessarily part of a whole world, and the perceiver cannot separate these from their context with distorting them.

On the other hand, in the intellectualist position Merleau-Ponty sees too much emphasis on judgment, so much so that the reception of sense data loses all meaning. Writing in *The Phenomenology of Perception*, our author contends: "Judgement is often introduced as *what sensation lacks to make perception possible*. Sensation is no longer presupposed as a real element of consciousness…. Perception becomes an 'interpretation' of the signs that our senses provide in accordance with the bodily

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[369] MERLEAU-PONTY, *Phenomenology of Perception*, 14.
[370] MERLEAU-PONTY, *Phenomenology of Perception*, 226.
[371] MERLEAU-PONTY, *Phenomenology of Perception*, 209. Italics in the original.
[372] MERLEAU-PONTY, *Phenomenology of Perception*, 230.
[373] See for instance MERLEAU-PONTY, *Phenomenology of Perception*, xvii: "'All consciousness is consciousness of something'; there is nothing new in that".
[374] MERLEAU-PONTY, *Phenomenology of Perception*, 313.

stimuli a 'hypothesis' that the mind evolves to 'explain its impressions to itself'"[375]. Merleau-Ponty offers two examples to explain what he intends, both borrowed from Descartes: sensing wax and sensing men passing by the window. Regarding the wax, Merleau-Ponty contends:

> The famous analysis of the piece of wax jumps from qualities such a smell, colour and taste, to the power of assuming an infinity of forms and positions, a power which lies beyond the perceived object and defines only the wax of the physicist. For perception there is no wax left when all its sensible properties have vanished, and only science supposes that there is some matter which is preserved. The 'perceived' wax itself, with its original manner of existing, its permanence which is not yet the exact identity of science, its 'interior horizon' of possible variation of shape and size, its dull colour suggestive of softness, which in turn suggests the dull sound I shall get when I pat it, in short, the perceptual structure of the object, are lost sight of, because specifications of a predicative kind are needed to link up objective and hermetically sealed qualities[376].

Likewise, when observing men walking from his window, the perceiver notes that they are obscured by their clothing. Hence, there can be no sensation produced on the retina, and thus the passersby are not "seen" but rather "judged" to be present[377]. However, if this is the understanding of judgment that is adopted, serious consequences develop, as Merleau-Ponty asserts:

> But judgement also, brought in to explain the excess of perception over the retinal impressions, instead of being the act of perception itself grasped from within by authentic introspection, becomes once more a mere 'factor' of perception, responsible for providing what the body does not provide—instead of being a transcendental activity, it becomes simply a logical activity of drawing a conclusion. In this way we are drawn away from reflection, and we construct perception instead of revealing its distinctive working…. The result is that intellectualist analysis eventually makes nonsense of the perceptual phenomena which it is designed to elucidate. While judgement loses its constitutive function and becomes an explanatory principle, the words 'see', 'hear', 'feel' lose all their meaning, since the least significant vision

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[375] MERLEAU-PONTY, *Phenomenology of Perception*, 32 and 33.

[376] MERLEAU-PONTY, *Phenomenology of Perception*, 33. Merleau-Ponty includes a footnote (n. 2) to the words "interior horizon", giving as a citation "Cf. Husserl, *Erfahrung und Urteil*, e.g., p. 172".

[377] MERLEAU-PONTY, *Phenomenology of Perception*, 33. Here Merleau-Ponty gives another footnote (n. 3), which gives the Cartesian text: "Descartes, 2nd Meditation, 'I do not fail to say that I see men, just as I say I see wax; yet what do I see from the window, except hats and coats which may cover ghosts or dummies worked by springs? Yet I judge them to be real men ...' AT, IX, p. 25".

> outruns the pure impression and thus comes under the general heading of 'judgement'[378].

To explain what he means, Merleau-Ponty offers some compelling examples; he argues that if we reduce perception to a judgment, i.e., to what we "think" we see, then there is no explanation possible for hallucinations and illusions. Regarding hallucinations, "If we see what we judge, how can we distinguish between true and false perception? How will it then be possible to say that the sufferer from hallucinations or the madman 'think they see what they do not see'? Where will be the difference between 'seeing' and 'thinking one sees'?"[379] Likewise, when considering Zöllner's illusion, the intellectualist position would claim that, although the lines are in fact parallel, we "'see' the main lines converging. Intellectualism simply reduces this phenomenon to a mistake…. [But] my mistake apparently remains unexplained"[380].

Neither empiricism nor intellectualism can provide all the answers: one emphasizes the sensory aspect to the reduction of the intellectual, and the other disregards the sensory to favor the intellectual. The answer to the dilemma of perception is to be found in balancing both aspects: perception concerns both a certain influence of sensations from without, and of intellectual processes within. What, then, is Merleau-Ponty's proposed solution to this dichotomy, a solution that enables the perceiver to restore and re-enter the world of perception? The answer is to be found at least partially in the *body*. As the French phenomenologist writes, summarizing his first two major works and the trajectory of study he wishes to follow:

> The perceiving mind is an incarnated mind. I have tried, first of all, to re-establish the roots of the mind in its body and in its world, going against doctrines which treat perception as a simple result of the action of external things on our body as well as against those which insist on the autonomy of consciousness. These philosophies commonly forget—in favor of a pure exteriority or of a pure interiority—the insertion

[378] MERLEAU-PONTY, *Phenomenology of Perception*, 32, 33, and 34.
[379] MERLEAU-PONTY, *Phenomenology of Perception*, 34-35.
[380] MERLEAU-PONTY, *Phenomenology of Perception*, 35.

> of the mind in corporeality, the ambiguous relation which we entertain with our body and, correlatively, with perceived things[381].

Merleau-Ponty likewise explains in *The World of Perception*: "Here … we come across the idea that rather than a mind *and* a body, man is a mind *with* a body, a being who can only get to the truth of things because its body is, as it were, embedded in those things"[382].

The role of the body will be discussed in the next section, but the question remains: what is perception for Merleau-Ponty? The first section in «The Primacy of Perception and its Philosophical Consequences» is aptly entitled: "*Perception as an original modality of consciousness*"[383]. As the title suggests, perception has primacy because it is the principal way we explore the world and come to know it: empiricism or intellectualism are abstract and partial considerations, and hence their methods or understandings are not the primary way we consider objects in the world. Rather, in perceiving, we grasp how these objects interact with our bodies and therefore they always have some value for us. It is true that our perceptions are never exhaustive, but this ambiguity is part of perception:

> Perception is here understood as a reference to a whole which can be grasped, in principle, only through certain of its parts or aspects. The perceived thing is not an ideal unity in the possession of the intellect, like a geometrical notion, for example; it is rather a totality open to a horizon of an indefinite number of perspectival views which blend with one another according to a given style, which defines the object in question[384].

To perceive is to enter the world of perception, to consider objects as they appear to us, interacting with our bodies, and to stay close to those objects. These objects are "real" (and not simply intellectual or ideal): the object "is given as the

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[381] MERLEAU-PONTY, «An Unpublished Text by Maurice Merleau-Ponty: *A Prospectus of His Work*», in *The primacy of perception*, 3-4.

[382] MERLEAU-PONTY, *The World of Perception*, 56. Emphasis in the original.

[383] MERLEAU-PONTY, «The Primacy of Perception and its Philosophical Consequences», in *The primacy of perception*, 23-24.

[384] MERLEAU-PONTY, «The Primacy of Perception and its Philosophical Consequences», in *The primacy of perception*, 16.

infinite sum of an indefinite series of perspectival views in each of which the object is given but in none of which is it given exhaustively"[385].

Body

It is clear from the foregoing that in Merleau-Ponty's vision, the body is essential for perception: as noted earlier, "The perceiving mind is an incarnated mind… [Other schools of thought have forgotten the importance of] the insertion of the mind in corporeality, the ambiguous relation which we entertain with our body and, correlatively, with perceived things"[386]. It is man's body, then, that enables him to perceive the world. Yet, the body is not in the world simply as some other object to be perceived. It plays an active role as a sort of mediator between the perceiver and the perceived, although it would be wrong to consider this mediation strictly through the lens of a subjective-objective dichotomy: "In perception we do not think the object and we do not think ourselves thinking it, we are given over to the object and we merge into this body which is better informed than we are about the world, and about the motives we have and the means at our disposal for synthesizing it"[387]. Likewise, elsewhere the French phenomenologist writes: "Perception is precisely that kind of act in which there can be no question of setting the act itself apart from the end to which it is directed. Perception and the percept necessarily have the same existential modality, since perception is inseparable from the consciousness which it has, or rather is, of reaching the thing itself"[388]. Recalling an earlier text from the same work, namely, "Our perception ends in objects, and the object once constituted, appears as the reason for all the experiences of it which we have had or could have"[389], we can argue that there can be no possibility of separating the perceiving subject, the act of perception, and the

[385] MERLEAU-PONTY, «The Primacy of Perception and its Philosophical Consequences», in *The primacy of perception*, 15.
[386] MERLEAU-PONTY, «An Unpublished Text by Maurice Merleau-Ponty: *A Prospectus of His Work*», in *The primacy of perception*, 3-4.
[387] MERLEAU-PONTY, *Phenomenology of Perception*, 238.
[388] MERLEAU-PONTY, *Phenomenology of Perception*, 374.
[389] MERLEAU-PONTY, *Phenomenology of Perception*, 67.

object perceived. It is in this sense that we can understand the "merging" of perceiver, body, and object.

Consequently, when we explore the world and the objects that are in it, our understanding of the world is necessarily shaped by the body. In *The World of Perception*, Merleau-Ponty considers the act of being "honeyed" as particularly paradigmatic. After considering how honey interacts with the body (e.g. "it soon creeps slyly from the fingers and returns to where it started from"), the phenomenologist notes:

> So the quality of being honeyed – and this is why this epithet can be used to symbolize an entire pattern of human behavior – can only be understood in the light of the dialogue between me as an embodied subject and the external object which bears this quality. The only definition of this quality is a human definition…. Honey is a particular way the world has of acting on me and my body. And this is why its various attributes do not simply stand side by side but are identical insofar as they all reveal the same way of being or behaving on the part of the honey[390].

As a result of these personal, embodied qualities, Merleau-Ponty concludes that "the things of the world are not simply neutral *objects* which stand before us for our contemplation. Each one of them symbolizes or recalls a particular way of behaving, provoking in us reactions which are either favourable or unfavourable"[391]. Therefore, we are not distant perceivers: "our relationship with things is not a distant one: each speaks to our body and to the way we live. They are clothed in human characteristics (whether docile, soft, hostile, or resistant) and conversely they dwell within us as emblems of forms of life we either love or hate"[392]. It is worth nothing that all objects are perceived in human terms, or, as Merleau-Ponty says elsewhere, they are "overlaid with anthropological predicates"[393]. This follows because of man perceiving by means of his body.

Perception is precisely this examination of objects as they interact with my body, and the examination is not from a distance, but rather very intimate and

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[390] MERLEAU-PONTY, *The World of Perception*, 60, 61-62.
[391] MERLEAU-PONTY, *The World of Perception*, 63. Emphasis in original.
[392] MERLEAU-PONTY, *The World of Perception*, 63.
[393] MERLEAU-PONTY, *Phenomenology of Perception*, 320.

connected to the object. An example found towards the end of *The World of Perception* is revealing:

> What then have we learned from our examination of the world of perception? We have discovered that it is impossible, in this world, to separate things from their way of appearing. Of course, when I give a dictionary definition of a table – a horizontal flat surface supported by three or four legs, which can be used for eating off, reading a book on, and so forth – I may feel that I have got, as it were, to the essence of the table; I withdraw my interest from all the accidental properties which may accompany that essence, such as the shape of the feet, the style of the moulding and so on. In this example, however, I am not perceiving but rather defining. By contrast, when I perceive a table, I do not withdraw my interest from the particular *way* it has of performing its function as a table: how is the top supported, for this is different with every table? What interests me is the unique movement from the feet to the table top with which it resists gravity; this is what makes each table different from the next. No detail is insignificant: the grain, the shape of the feet, the colour and age of the wood, as well as the scratches or graffiti which show that age. The meaning, 'table', will only interest me insofar as it arises out of all the 'details' which embody its present mode of being. If I accept the tutelage of perception, I find I am ready to understand the work of art. For it too is a totality of flesh in which meaning is not free, so to speak, but bound, a prisoner of all the signs, or details, which reveal it to me. Thus the work of art resembles the object of perception: its nature is to be seen or heard and no attempt to define or analyse it, however valuable that may be afterwards as a way of taking stock of this experience, can ever stand in place of the direct perceptual experience[394].

The connection between body and perceiver, this embodied or incarnate perceiver, is often overlooked in everyday life. Writing in *The Structure of Behavior*, Merleau-Ponty reflects that "the bodily mediation most frequently escapes me: when I witness events that interest me, I am scarcely aware of the perpetual breaks which the blinking of the eyelids imposes on the scene, and they do not figure in my memory. But after all, I know very well that I am able to interrupt the view by closing my eyes, that I see by the intermediary of my eyes"[395]. Yet, upon reflection, we see the body is always mediating; often it takes a disturbance to realize this, such as sickness. As Merleau-Ponty continues soon after:

> But on the other hand consciousness discovers, particularly in illness, a resistance of the body proper. Since an injury to the eyes is sufficient to eliminate vision, we must then see through the body. Since an illness is sufficient to modify the phenomenal world, it must be then that the body forms a screen between us and things. In order to understand this strange power of the body to upset the entire view of the world, we are

[394] MERLEAU-PONTY, *The World of Perception*, 94-95. Emphasis in the original.
[395] MERLEAU-PONTY, *The structure of behavior*, 188.

> obliged to renounce the image of it which direct experience gives us. The phenomenal body, with the human determinations which permitted consciousness not to be distinguished from it, is going to take on the status of appearance[396].

There cannot be any perception without the body, since "external perception and the perception of one's own body vary in conjunction because they are the two facets of one and the same act"[397]. Likewise, "every external perception is immediately synonymous with a certain perception of my body, just as every perception of my body is made explicit in the language of external perception"[398]. Rather poetically, in *The Phenomenology of Perception* Merleau-Ponty writes:

> Thus the thing is correlative to my body and, in more general terms, to my existence, of which my body is merely the stabilized structure. It is constituted in the hold which my body takes upon it; it is not first of all a meaning for the understanding, but a structure accessible to inspection by the body, and if we try to describe the real as it appears to us in perceptual experience, we find it overlaid with anthropological predicates. The relations between things or aspects of things having always our body as their vehicle, the whole of nature is the setting of our own life, or our interlocutor in a sort of dialogue[399].

This emphasis on the importance of the body is retained even in *The Visible and the Invisible*, although there are many possible interpretations of that importance. For instance, Merleau-Ponty notes: "One can say that we perceive the things themselves, that we are the world that thinks itself—or that the world is at the heart of our flesh. In any case, once a body-world relationship is recognized, there is a ramification of my body and a ramification of the world and a correspondence between its inside and my outside, between my inside and its outside"[400].

Immediately after those inserted words, Merleau-Ponty's text reads: "The body unites us directly with the things through its own ontogenesis, by welding to one another the two outlines of which it is made, its two laps [*sic*]: the sensible mass it is and the mass of the sensible wherein it is born by segregation and upon which, as seer,

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[396] MERLEAU-PONTY, *The structure of behavior*, 189-190.
[397] MERLEAU-PONTY, *Phenomenology of Perception*, 205.
[398] MERLEAU-PONTY, *Phenomenology of Perception*, 206.
[399] MERLEAU-PONTY, *Phenomenology of Perception*, 320.
[400] MERLEAU-PONTY, *The visible and the invisible*, 136. The editor of the English edition places this text in a footnote and comments that, after the words "natal secret", "in the course of the text itself, between brackets, these lines are inserted".

it remains open"[401]. It is worth noting that while Merleau-Ponty finds this importance of the flesh to be an original insight, Fabro finds antecedents to it in Aristotle's thought[402].

Life-world [Lebenswelt]

Having examined the notions of perception and the body, we now turn to what is perceived. As mentioned earlier, the life-world (sometimes translated as lived world)[403] is a notion that Merleau-Ponty took from the late works of Husserl[404]. In

[401] MERLEAU-PONTY, *The visible and the invisible*, 136. Merleau-Ponty's original reads "ses deux lèvres"; Fabro translates this as "due labbra" whereas Alphonso Lingis' English translation has "two laps". Perhaps Lingis' translation is simply a typographical error, with "laps" rather than "lips". See MERLEAU-PONTY, *Il visibile e l'invisibile*, Editions Gallimard, Paris 2001, 177; FABRO, *Essere nel corpo*, 81; MERLEAU-PONTY, *The visible and the invisible*, 136.

[402] See FABRO, *Essere nel corpo*, 84: Fabro notes that it is odd that Merleau-Ponty is unaware of the Aristotelian notion of flesh in the exercise of sensibility, citing *De Anima*, II, 11, 423 b 26: "From this it is clear that that which is perceptive of what is touched is within. Thus would occur what is true in the other cases; for when objects are placed on the other sense organs no sensation occurs, but when they are placed on the flesh it does; hence the medium of the tangible is flesh. The distinguishing characteristics of the body, qua body, are tangible; by distinguishing characteristics I mean those which differentiate the elements hot and cold, dry and wet, about which we have spoken before in our discussion of the elements. The tactual organ which perceives them, i.e., that in which the sense of touch, as it is called, primarily resides, is a part which has potentially the qualities of the objects touched. For perception is a form of being acted upon": "οὕτω γὰρ ἂν συμβαίνοι ὅπερ καὶ ἐπὶ τῶν ἄλλων· ἐπιτιθεμένων γὰρ ἐπὶ τὸ αἰσθητήριον οὐκ αἰσθάνεται, ἐπὶ δὲ τὴν σάρκα ἐπιτιθεμένων αἰσθάνεται· ὥστε τὸ μεταξὺ τοῦ ἁπτικοῦ ἡ σάρξ. Ἁπταὶ μὲν οὖν εἰσὶν αἱ διαφοραὶ τοῦ σώματος ᾗ σῶμα· λέγω δὲ διαφορὰς αἳ τὰ στοιχεῖα διορίζουσι, θερμὸν ψυχρόν, ξηρὸν ὑγρόν, περὶ ὧν εἰρήκαμεν πρότερον ἐν τοῖς περὶ στοιχείων. τὸ δὲ αἰσθητήριον αὐτῶν τὸ ἁπτικόν, καὶ ἐν ᾧ ἡ καλουμένη ἁφὴ ὑπάρχει πρώτῳ, τὸ δυνάμει τοιοῦτόν ἐστι αμόριον· τὸ γὰρ αἰσθάνεσθαι πάσχειν τι ἐστίν. ὥστε τὸ ποιοῦν οἷον αὐτὸ ἐνεργείᾳ, τοιοῦτον ἐκεῖνο ποιεῖ δυνάμει ὄν". ARISTOTLE, *On the Soul. Parva Naturalia. On Breath*, Harvard University Press, Cambridge, MA Loeb Classical Library 288: 132-135.

[403] See LANDES, *The Merleau-Ponty dictionary*, 264.

[404] See C. GRÜNY «Phenomenology: Philosophical Aspects» in J. D. WRIGHT (ed.), *International Encyclopedia of the Social & Behavioral Sciences*, Elsevier, Amsterdam 2015[2], who notes that "Husserl first used the term 'Lebenswelt' in a manuscript in 1917 but the topic of the everyday world of the 'natural attitude' was present long before that. Not until 1935, however, did the lifeworld figure in his published writings". This reference is to the 1935 *Die Krisis des Europäischen Menschentums und die Philosophie*. See E. HUSSERL, *Die Krisis der europäischen Wissenschaften und die transzendentale Phänomenologie*, Band VI Gesammelte Werke, Martinus Nijhoff, The Hague 1954: 314-348. For the development of this term in Husserl, see E. DORFMAN, «History of the Lifeworld», 53/3 (2009), in 10.5840/philtoday200953317 [22-12-2024], 294–303.

Phenomenology and the Crisis of European Man, Husserl makes mention of the common life that arises because of individuals forming a community:

> In these sciences [the so-called humanistic sciences] theoretical interest is directed exclusively to human beings as persons, to their personal life and activity, as also correlatively to the concrete results of this activity. To live as a person is to live in a social framework, wherein I and we live together in community and have the community as a horizon. Now, communities are structures in various simple or complex forms, such as family, nation, or international community. Here the word 'live' is not to be taken in a physiological sense but rather as signifying purposeful living, manifesting spiritual creativity—in the broadest sense, creating culture within historical continuity[405].

It is important to note the emphasis on community (since ours is a shared world, one of intersubjective experiences) and on the life-world and community as a horizon or limit. This Husserlian life-world is, in the words of Eran Dorfman, "the hidden foundation of any objectivity, that is, the world of immediate experience and intuition"[406]. Analyzing Husserl's text, Dorfman notes that:

> The lifeworld is, then, presented as an eternal, universal, and ahistorical structure. It stands indeed at the basis of naturalism and objectivism, but cannot be influenced by them in return…. The lifeworld, serving as foundation and ground for any subsequent technique, invention, or idealization, is independent of its cultural and historical context, and is therefore exempt from the crisis of meaning. This may sound strange at first, but it stems from the fact that Husserl maintains a vertical model of the history of perception, which is contained in the notion of sedimentation, a metaphor of a geological structure consisting of perceptive layers, the deepest of which serves as foundation for the more recent ones. This primitive and hyletic layer is the lifeworld, which is subsequently covered by all sorts of successive structures and superstructures founded upon it without influencing it in any way[407].

Whether Husserl continues to maintain this life-world is at the basis of all other perceptions, and other details regarding its importance for life in general, is left unclear in his later works[408]. What is certain, however, is this notion takes on great importance for Merleau-Monty, and the life-world is very closely related to the primacy of

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[405] HUSSERL, *Phenomenology and the Crisis of Philosophy*, 150.

[406] DORFMAN, «History of the Lifeworld», 295

[407] DORFMAN, «History of the Lifeworld», 295 and 296.

[408] See DORFMAN, «History of the Lifeworld», 296: "But does the lifeworld actually remain at the bottom of any subsequent perception? The lifeworld is treated throughout Husserl's writings with an ambiguity…. Husserl seems to vacillate between these two notions of the lifeworld: one of a pre-given level and another of a world of action; one of a foundation of everyday life and another of everyday life itself".

perception. Indeed, as James M. Edie notes, "by advancing the thesis of the 'primacy of perception' or of 'phenomenological positivism,' Merleau-Ponty means to assert, first of all, that the perceived life-world is the primary reality, the really real, true being, the primary analogon"[409]. It should be noted as well the world of "lived life" is pre-scientific and hence this lived world, i.e., the world of perception, is different from the world examined by the empirical sciences[410].

Life-world and our being-in-the-body go hand in hand. On the one hand, this speaks of the importance of our being-in-the-body: "Our own body is in the world as the heart is in the organism: it keeps the visible spectacle constantly alive, it breathes life into it and sustains it inwardly, and with it forms a system"[411]. However, it also speaks to the importance of the world. As mentioned earlier, Merleau-Ponty sees the act of perception, the perceiver, and the thing perceived are inseparable, and this has consequences for the life-world:

> The world is inseparable from the subject, but from a subject which is nothing but a project of the world, and the subject is inseparable from the world, but from a world which it projects itself. The subject is a being-in-the-world and the world remains 'subjective' since its texture and articulations are indicated by the subject's movement of transcendence. Hence we discovered, with the world as the cradle of meanings, the direction of all directions, and ground of all thinking, how to leave behind the dilemma of realism and idealism, contingency and absolute reason, nonsense and sense. The world as we have tried to show it, as standing on the horizon of our life as the primordial unity of all our experiences, and one goal of all our projects, is no longer the visible unfolding of a constituting Thought, not a chance conglomeration of parts, nor, of course, the working of a controlling Thought on an indifferent matter, but the native abode of all rationality.[412]

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[409] See the introduction by James M. Edie to MERLEAU-PONTY, «Introduction», in *The primacy of perception*, xvi.

[410] See MERLEAU-PONTY, *The World of Perception*, Lecture I, *The World of Perception and the World of Science.* Likewise, elsewhere "Against behaviorism, it has been established that the 'geographical environment' and the 'behavioral environment' cannot be identified": MERLEAU-PONTY, *The structure of behavior*, 129.

[411] MERLEAU-PONTY, *Phenomenology of Perception*, 203.

[412] MERLEAU-PONTY, *Phenomenology of Perception*, 430. The word "subjective" is marked with a footnote, which cites Heidegger as follows: "Heidegger, *Sein und Zeit*, p. 366: 'Wenn das "Subjekt" ontologisch als existierendes Dasein begriffen wird, deren Sein in der Zeitlichkeit griindet, dann muss gesagt werden: Welt ist "subjektiv". Diese "subjektive" Welt aber is dann als Zeittranszendente "objektiver" als jedes mogliche "Objekt.'" The Stambaugh translation renders this as: "If the 'subject' is conceived ontologically as existing Da-sein,

It is in examining this world and entering into it that we are able to come to knowledge. In a passage cited earlier, Merleau-Ponty notes that what makes knowledge possible is not the transcendental reduction, but rather this vague, constantly changing life-world.

> We have discovered, with the natural and social worlds, the truly transcendental, which is not the totality of constituting operations whereby a transparent world, free from obscurity and impenetrable solidity, is spread out before an impartial spectator, but that ambiguous life in which the forms of transcendence have their *Ursprung*, and which, through a fundamental contradiction, puts me in communication with them, and on this basis makes knowledge possible[413].

Knowledge is possible only because of the life-world. Merleau-Ponty makes many other references to the *Lebenswelt* throughout his works, and the emphasis on its importance for overcoming dialectic between self and others should be noted. For instance, in his lecture notes for *Philosophy as Interrogation*, the French phenomenologist notes that in his last writings Husserl proposed a return:

> from an objective world to a *Lebenswelt* in whose continual flux are borne Nature and the objects of perception, as well as the constructions through which we grasp them with Cartesian exactness; it is the source in general of all the historical structures which help us to analyze or model our relations with others and with the truth. When translated in terms of the *Lebenswelt,* the antinomies in the constitution of *alter* or those in the world thesis cease to be hopeless. We no longer have to try to understand how a for-itself can think of another from the ground of its own absolute solitude or how it could think of a preconstituted world in the very moment that it constitutes the world: the inherence of the self-in-the-world or of the world-in-the-self, what Husserl calls the *Ineinander,* is silently inscribed in an all-embracing experience which composes these incompossibles, and philosophy becomes the enterprise of describing, outside of the logic and vocabulary at band, the universe of living paradoxes. The reduction no longer involves a return to ideal being, but brings us back to the spirit of Heraclitus, to an interweaving of horizons, to an open Being[414].

As Landes explains, here "classical ontology dissolves through the notion of the *Lebenswelt* (lived-world), in which there is no longer an absolute for-itself and an absolute in-itself, but rather 'the inherence of a self-in-the-world and of the world-in-

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whose being is grounded in temporality, we must say then that the world is 'subjective.' But this 'subjective' world, as one that is temporally transcendent, is then 'more objective' than any possible 'object'". See M. HEIDEGGER, *Being and time*, 335.

[413] MERLEAU-PONTY, *Phenomenology of Perception*, 364-365.

[414] M. MERLEAU-PONTY, «Philosophy as Interrogation» in *In Praise of Philosophy and Other Essays*, Northwestern University Press 1988, 176.

the-self, what Husserl calls the *Ineinander*'"[415]. The transcendental reduction of Husserl was to lead to a perfect reduction and hence an intuition of the self; Merleau-Ponty argues that such a reduction is impossible, and instead we should turn to the ever-changing life-world that provides us with the basis for knowledge, precisely because perception entails the unity or inseparability of the perceiver, the act of perception, and the perceived. When viewed this way, questions regarding how "a for-itself can think of another from the ground of its own absolute solitude or how it could think of a preconstituted world in the very moment that it constitutes the world"[416] disappear: the self-in-the-world or world-in-the-self overcomes such obstacles.

An essay in *Signs*, with an emphasis on the importance of language, affirms the same point. In his essay, "On the Phenomenology of Language", Merleau-Ponty again recalls the importance of Husserl's return to the *Lebenswelt* in his late works, and argues:

> The reason why the return to the *Lebenswelt* (and particularly the return from objectified language to speech) is considered absolutely necessary is that philosophy must reflect upon the object's mode of presence to the subject—upon the conception of the object and of the subject as they appear to the phenomenology revelation—instead of replacing them by the object's relationship to the subject as an idealistic philosophy of total reflection conceives of it. From this point on, phenomenology envelops philosophy, which cannot be purely and simply added on to it[417].

Hence, since the *Lebenswelt* is the primary reality, it is also the focus of our attention and perception; rather than the distant considerations of the empirical sciences,

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[415] LANDES, *The Merleau-Ponty dictionary*, 59. Landes also mentions that there is a short discussion of the *Lebenswelt* in «The Problem of Passivity: Sleep, Unconsciousness, Memory» (see 53-54). However, the discussion is very brief and addresses the "Solution sought to the problem of passivity in the perceived, i.e., pre-objective world, *Lebenswelt*, thus without exogenous causality and with endogenous causality that is never pure activity of the *Sinngebung*, the latter being carried by *Gestaltung* and, in particular, that of language". M. MERLEAU-PONTY, «The Problem of Passivity» in *Institution and Passivity: Course Notes from the Collège de France (1954-1955)*, Northwestern University Press, Evanston, Illinois 2010, 122-123.

[416] MERLEAU-PONTY, «Philosophy as Interrogation» in *In Praise of Philosophy and Other Essays*, 176.

[417] M. MERLEAU-PONTY, «On the Phenomenology of Language» in *Signs (SPEP)*, Northwestern University Press 1987.

centering on the *Lebenswelt* brings us face to face with the world as we encounter it, nearby, and as we experience it. However, regarding precisely *how* we encounter it leads us to consider, in turn, Merleau-Pontian considerations of the past, language, the body scheme, and the difference between phenomenal and objective.

Past

An important aspect of our being-in-the-world is the way in which past experiences shape our world. In poetic language, Merleau-Ponty notes: "Hardness and softness, roughness and smoothness, moonlight and sunlight, present themselves in our recollection, not pre-eminently as sensory contents, but as certain kinds of symbiosis, certain ways the outside has of invading us and certain ways we have of meeting this invasion, and memory here merely frees the framework of the perception from the place where it originates"[418].

Likewise, perception is never without context, both external (in the world) and internal (regarding the past, personal experience, and more): "An initial perception independent of any background is inconceivable. Every perception presupposes, on the perceiving subject's part, a certain past, and the abstract function of perception, as a coming together of objects, implies some more occult act by which we elaborate our environment"[419].

As a result, the perceiver is not simply a static figure in the world. In a particularly dense text towards the end of *Phenomenology of Perception*, Merleau-Ponty synthesizes what was said above in different contexts:

> By taking up a present, I draw together and transform my past, altering its significance, freeing and detaching myself from it…. All explanations of my conduct in terms of my past, my temperament and my environment are therefore true, provided that they be regarded not as separable contributions, but as moments of my total being, the significance of which I am entitled to make explicit in various ways, without its ever being possible to say whether I confer their meaning upon them or receive it from them. I am a psychological and historical structure, and have received, with existence, a manner of existing, a style. All my actions and thoughts stand in a relationship to this

[418] MERLEAU-PONTY, *Phenomenology of Perception*, 317.
[419] MERLEAU-PONTY, *Phenomenology of Perception*, 291.

> structure, and even a philosopher's thought is merely a way of making explicit his hold on the world, and what he is. The fact remains that I am free, not in spite of, or on the hither side of, these motivations, but by means of them[420].

The human person is not simply a collection of past perceptions: rather, by the very fact of being-in-the-world, a structure is given. This structure is not simply organic or biological, but rather psychological and historical. All these confer on the person a "style" or way of being-in-the-world, a style which, in turn, not only affects how and what the person perceives, but is also in turn modified by those very perceptions. The result is a dynamic, ever-changing being-in-the-world.

Language

Maurice Merleau-Ponty also spent a great deal of study regarding language, which he considered as "a problem for both philosophy and psychology"[421]. As James M. Edie writes, "Merleau-Ponty's attitude toward language is quite idiosyncratic for a philosopher and, in this, he is extremely original. He discovers and pays special attention to what no philosopher from Plato on down ever had any interest in, namely, the kind of meaning which exists just on the level of the phonemic patterns that are capable of being accepted by that language's native speakers"[422]. Edie notes this interest in language begins in *The Phenomenology of Perception*, and then becomes intensified through Merleau-Ponty's discovery of Saussure and the field of scientific linguistics. "From 1949 onward," notes Edie, "[Merleau-Ponty's] writings on language multiply rapidly. Language begins to become his central preoccupation; it is no longer treated as just one example among many of the specifically human institutions of meaning, but now becomes the privileged model of the whole of our experience of meaning"[423]. This interest was so great that Merleau-Ponty began work on a "major, comprehensive treatise on the philosophy of language*, La Prose du monde*. But after

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[420] MERLEAU-PONTY, *Phenomenology of Perception*, 455.

[421] M. MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, Northwestern University Press 1979, 3.

[422] J. M. EDIE, «Foreward» in M. MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, Northwestern University Press 1979, xvii.

[423] EDIE, «Foreward» in MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP*), xix.

1952-53 he seems, little by little, to have lost interest in this particular work, and he definitively abandoned it altogether after 1959"[424].

While the Merleau-Pontian philosophy of language is a vast subject, we can limit ourselves to examining it in its connections with the body, the body schema, and perception in general. Language occupies a privileged place in human life. As our author contends, "Language is much more like a sort of being than a means, and that is why it can present something to us so well. A friend's speech over the telephone brings us the friend himself, as if he were wholly present in that manner of calling and saying goodbye to us, of beginning and ending his sentences, and of carrying on the conversation through things left unsaid"[425]. Hence, it is clear that language is not simply a means of communication; it is a very profound way in which the world is present to us and we are present to the world with the others who occupy it.

This curious metaphysical status of speech as almost a sort of being is also seen in the connection between language and the body. On the one hand, this link stems from language's relation to the body and physical activity: "Language is the indissoluble extension of all physical activity and at the same time it is quite new in relation to that physical activity. Speech emerges from the 'total language' as constituted by gestures, mimicries, etc. … But speech transforms. Already it uses the organs of phonation for a function that is unnatural to them—in effect, language has no organs"[426]. "We use *la langue* in the way we use our bodies, without thought and without explicit consciousness of the structures which we are bringing into action at any one point"[427]. In other words, language is embodied, just as we are embodied

[424] EDIE, «Foreward» in MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, xxi. Eventually the text, as it was found, was published: M. MERLEAU-PONTY, *La Prose du monde*, Editions Gallimard, Paris 1969. Available in English translation as M. MERLEAU-PONTY, *The Prose of the World*, Northwestern University Press, Evanston 1973.

[425] MERLEAU-PONTY, «Indirect Language and the Voices of Silence» in *Signs (SPEP)*, 43.

[426] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 12.

[427] EDIE, «Foreward» in MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, xxiii.

perceivers; language serves almost as an extension of our bodies and of our being-in-the-world.

Indeed, Merleau-Ponty draws the logical consequence: language is also intimately related to the body schema: "This action at a distance by language, which brings significations together without touching them … are eminent cases of corporeal intentionality. I have a rigorous awareness of the bearing of my gestures or of the spatiality of my body which allows me to maintain relationships with the world without thematically representing to myself the objects I am going to grasp or the relationships of size between my body and the avenues offered to me by the world"[428].

Lastly, language is also closely related to perception, both of other people as well as the world at large. Regarding the first, in *The Phenomenology of perception* Merleau-Monty notes that "there is one particular cultural object which is destined to play a crucial role in the perception of other people: language"[429]. Part of language's almost being-like nature is to be found in this social aspect. "As soon as man uses language to establish a living relation with himself or with his fellows", indicates Merleau-Ponty, "language is no longer an instrument, no longer a means; it is a manifestation, a revelation of intimate being and of the psychic link which unites us to the world and our fellow men"[430].

Language also shapes the perception of the world. In a particularly revealing passage from *The Phenomenology of perception*, Merleau-Ponty explores how language affects the child and can "bring the thing expressed into existence":

> When a child cannot speak, or cannot yet speak the adult's language, the linguistic ritual which unfolds around him has no hold on him, he is near us in the same way as is a spectator with a poor seat at the theatre; he sees clearly enough that we are laughing and gesticulating, he hears the nasal tune being played, but there is nothing at the end of those gestures or behind those words, nothing happens for him. Language takes on a meaning for the child when it establishes a situation for him. A story is told in a children's book of the disappointment of a small boy who put on his grandmother's spectacles and took up her book in the expectation of being able himself to find in it

[428] MERLEAU-PONTY, «On the Phenomenology of Language» in *Signs (SPEP)*, 89.
[429] MERLEAU-PONTY, *Phenomenology of Perception*, 354.
[430] MERLEAU-PONTY, *Phenomenology of Perception*, 196.

> the stories which she used to tell him. The tale ends with these words: 'Well, what a fraud! Where's the story? I can see nothing but black and white.' For the child the 'story' and the thing expressed are not 'ideas' or 'meanings', nor are speaking or reading 'intellectual operations'. The story is a world which there must be some way of magically calling up by putting on spectacles and leaning over a book. The power possessed by language of bringing the thing expressed into existence, of opening up to thought new ways, new dimensions and new landscapes, is, in the last analysis, as obscure for the adult as for the child[431].

This power of language to open the perceiver to new experiences is fascinating, but ultimately, as Merleau-Ponty notes, "obscure" and unclear in its mechanism.

Body schema (or image)

Related to the notion of body is that of the body schema or image. "The term 'body schema'," notes Landes, "is a difficult term to situate historically and conceptually. It is meant to indicate the non-explicit awareness one has of the position, posture, and capabilities of one's own body…. For Merleau-Ponty, the body schema expresses not just our current position, but encompasses our lived possibilities such that it expresses our habits and our style of being-in-the-world"[432].

Landes' explanation of the notion of body image is taken almost *verbatim* from the Merleau-Pontian corpus. As Merleau-Ponty notes, this schema is not simply awareness of the body itself, but also includes the manifold possibilities for movement and action in the body:

> The normal subject has his body not only as a system of present positions, but besides, and thereby, as an open system of an infinite number of equivalent positions directed to other ends. What we have called the body image is precisely this system of equivalents, this immediately given invariant whereby the different motor tasks are instantaneously transferable. It follows that it is not only an experience of my body, but an experience of my body in the world, and that this is what gives a motor meaning to verbal orders[433].

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[431] MERLEAU-PONTY, *Phenomenology of Perception*, 401.

[432] LANDES, *The Merleau-Ponty dictionary*, 32. Landes continues noting that the "translation question between 'body schema' and 'body image' is delicate. Lhermitte used '*l'image de notre corps*' ('body image'). Schilder used *das Körperschema* ('body schema') in German and 'body image' when he wrote in English. Merleau-Ponty writes *schéma corporel* in French, which resists any misconception of this as a notion of representation" (33).

[433] MERLEAU-PONTY, *Phenomenology of Perception*, 141.

In *The Phenomenology of Perception* Merleau-Ponty relates this body image expressly to perception:

> The theory of the body image is, implicitly, a theory of perception. We have relearned to feel our body; we have found underneath the objective and detached knowledge of the body that other knowledge which we have of it in virtue of its always being with us and of the fact that we are our body. In the same way we shall need to reawaken our experience of the world as it appears to us in so far as we are in the world through our body, and in so far as we perceive the world with our body. But by thus remaking contact with the body and with the world, we shall also rediscover ourself, since, perceiving as we do with our body, the body is a natural self and, as it were, the subject of perception[434].

Hence, it is this body image that provides us with the understanding of our body-in-the-world, enabling us to consider all the many implications that being-in-the-world entails for our actions and perceptions[435]. It seems, as well, this body schema also encompasses data from others: in *Consciousness and the Acquisition of Language* Merleau-Ponty comments that "the perception of the other's *behavior* and the perception of the body itself by a global *corporeal schema* are two aspects of one original that realizes the identification of the self with others"[436].

Phenomenal versus objective

Lastly, we should also consider the difference between *phenomenal* and *objective*. Earlier mention was made of the difference between phenomenal, living, or pre-scientific world, and the objective or scientific world. We can recall some examples from Merleau-Ponty: the green of grass on the mountain is different when considered apart from the mountain, and "the blue of a carpet would never be the same blue were it not a woolly blue"[437]. From a scientific perspective, color is a result of the refraction of light, and this can certainly be measured. This principle is at the basis, for instance, of how home improvement stores can scan a paint sample and create a matching paint.

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[434] MERLEAU-PONTY, *Phenomenology of Perception*, 206.

[435] See also MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 68: "The illusion [of the phantom limb] is founded on a *corporal scheme* or body image (which is the scheme of all possible activities, rather than a scheme of the actual bodily state)".

[436] M. MERLEAU-PONTY, *Child psychology and pedagogy*, Northwestern University Press, Evanston, Ill 2010, 24.

[437] MERLEAU-PONTY, *Phenomenology of Perception*, 313.

Yet, for Merleau-Ponty, to truly perceive is to unify the perceiver, the act of perception, and the thing perceived. The wooly blue of the carpet is an experience, a phenomenon, that is not the same if the wool is not present. Hence, one thing is the phenomenal world in which we live and interact, wherein all these aspects are found together, and another is the scientific or objective world, wherein these aspects can be separated and considered from an atomistic point of view.

This difference between objective and phenomenal also applies to the body: for instance, we find Merleau-Ponty commenting that "each contact of an object with part of our objective body is, therefore, in reality a contact with the whole of the present or possible phenomenal body"[438]. The question arises of the relation between these two bodies: on the one hand, the French phenomenologist affirms that "the objective body is not the version of the phenomenal body, that is, the true version of the body that we live by; it is indeed no more than the latter's impoverished image, so that the problem of the relation of soul to body has nothing to do with the objective body, which exists only conceptually, but with the phenomenal body"[439]. The objective body is a concept, because we do not live in or interact by means of our objective body. Indeed, how could we ever come to know or interact with our objective body, since all our experiences and actions are mediated through the phenomenal body? Merleau-Ponty affirms that our experiences are all by means of our phenomenal body, the lived body. "It is never our objective body that we move, but our phenomenal body, and there is no mystery in that, since our body, as the potentiality of this or that part of the world, surges towards objects to be grasped and perceives them"[440]. This text is marked with a footnote which reads:

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[438] MERLEAU-PONTY, *Phenomenology of Perception*, 317. See also MERLEAU-PONTY, *The structure of behavior*, 156: "Here let us say only that the perception of the living body—or, as we shall say from now on, of a 'phenomenal body'—is not a mosaic of just any visual or tactual sensations which, associated with the internal experience of desires, emotions and feeling (or understood as the signs of those mental attitudes) would receive from them a vital signification".

[439] MERLEAU-PONTY, *Phenomenology of Perception*, 431-432.

[440] MERLEAU-PONTY, *Phenomenology of Perception*, 106.

> It is not a question of how the soul acts on the objective body, since it is not on the latter that it acts, but on the phenomenal body. So the question has to be reframed, and we must ask why there are two views of me and of my body: my body for me and my body for others, and how these two systems can exist together. It is indeed not enough to say that the objective body belongs to the realm of 'for others', and my phenomenal body to that of 'for me', and we cannot refuse to pose the problem of their relations, since the 'for me' and the 'for others' coexist in one and the same world, as is proved by my perception of an other who immediately bring me back to the condition of an object for him[441].

Here Merleau-Ponty has asserted the difference between the two bodies, but has also left us with questions: the difference is not, as we might be tempted to say, that the objective body is what others perceive, and the phenomenal body is what we perceive and by means of which we perceive. These two aspects can never be entirely separated because we are beings-in-the-world. As will be seen in the discussion of phantom limbs, Merleau-Pony admits that sometimes these two "bodies" enter into conflict with each other: for instance, the phenomenal body holds onto a lost limb which the objective body clearly no longer has.

Merleau-Pontian insights for Aquinas and Fabro

Having laid the foundations with our discussion of Merleau-Ponty's insights and understanding of perception, let us turn our attention to the dialogue between Fabro's Aquinas and Merleau-Ponty. We have already mentioned several principles and philosophical presuppositions in the French phenomenologist's work; now we can consider some points of Merleau-Pontian phenomenology which could be integrated into the framework of a Thomistic epistemology. These points are: 1) perception as embedded in a world; 2) Merleau-Ponty's work gives a richer description of what the perceived object is; 3) his work enriches the Thomistic cogitative power with respect to the phantasm, and; 4) how the body scheme grows, develops, and is modified.

[441] MERLEAU-PONTY, *Phenomenology of Perception*, 106, ftn. 1.

Perception as embedded in a world

One of the Merleau-Pontian insights that could benefit the Thomistic understanding of perception is the notion that perception is embedded, that is, perception necessarily takes place within a world. It could be argued that for Aquinas perception is clearly embedded, since, as a realist philosophy, it could not be otherwise: there must exist an external, mind-independent world, and the perceiving subject is necessarily contained within this world. However, our interest concerns whether there could be a dialogue with Merleau-Ponty precisely regarding *how* we are embedded perceivers in the world.

One possible point of contact is the Thomistic notion of the *medium* for perception. In other words, perception is not simply the reception of sensations by means of specialized organs; the environment itself affects the way in which these sensations are perceived. The medium is not precisely what is sensed but rather it is the means by which the sensations from an object can reach the subject. A lengthy discussion of the medium of sight is found in Aquinas' commentary on the *De Anima*, book 2, liber 14 and 15, a discussion followed by considerations of the mediums of sound, smell, taste, and touch.

In this text, Aquinas argues that "we do sense every sense-object through an extraneous medium"[442]. The paradigmatic case here is that of sight, which requires light so that colors be seen. As Aquinas notes:

> [Aristotle] says that color is visible in itself but not by its account, that is to say, not such that visibility is placed in its definition, but because it has in itself the cause that it should be visible, as a subject possesses in itself the cause of its own proper passion. Which he proves by this, that every color is able to move what is transparent actually.

[442] DA bk. 2, lect. 23, n. 542: "omnia enim sensibilia sentimus per medium extraneum". While we follow the *De Anima* commentary, note that there is confusion and ambiguity regarding Aquinas' position when considering the *Summa Theologiae*, which offers a different approach. Indeed, even in the *De Anima* Aquinas will argue for a medium that is not extraneous, namely, the flesh (see lect. 21, n. 502: "Touch does not sense through an extraneous medium, but through a conjoined medium, for flesh is the medium in the sense of touch, as we shall see"). For a detailed discussion of these differences, see LISSKA, *Aquinas's Theory of Perception*, Chapter 6, "Preconditions of Visual Awareness: Object and Medium", 149-165.

> Now, the diaphanous is the same thing as the transparent (for example**,** air or water), and color has it in its own nature that it can move what is transparent in act. And that which moves the actually transparent is visible; whence it follows that color is visible according to its own nature. And since the transparent is brought to act only through light, it follows that color is not visible without light[443].

In other words, although color is visible in itself, it needs to have a transparent medium (Aquinas gives air, water, glass, and some jewels are examples in n. 404) activated by means of light in order for those colors to be actually seen. Other mediums are considered through the text: in lect. 16 air or water are named as the medium for sound (water less so than air) when a suitable instrument produces sound, and in lect. 20 air and water are likewise the medium for smell. The medium for taste is more complicated: indeed, technically there is no medium, as Aquinas notes:

> [Aristotle] shows what is required for taste in the place of a medium, observing that nothing tasteable is tasted without moisture. For as color becomes actually visible through light, so flavor becomes actually tasteable through moisture; for which reason all that is tasteable is either actually liquid, like wine or the like, or is potentially liquid, like things taken as food. Hence, the necessity of saliva in the mouth; being very liquid, it moistens the tongue, so that what is eaten may be wetted and its savor perceived[444].

However, of greatest interest for our discussion is the medium for touch. While bearing in mind the difficulties and varying interpretations of Aquinas' views, we can note that here the flesh is presented, not as the organ of touch, but rather as a medium of sensation: "Thus it is clear that the organ of touch is internal, for this sense works in the same way as in others; and since animals do not sense sense-objects apart from their sense organs, if animals can sense sense-objects placed on their flesh, it is evident that flesh is not precisely a sense organ but rather a medium of sensation"[445]. The flesh is the medium of sensation; in other words, the flesh is not what is sensed, nor is it the organ of sense, but rather it is the means *by which* touch is possible. In this, there is a certain correspondence with Merleau-Ponty's notion that we perceive by means of the body-in-the-world.

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[443] DA bk. 2, lect. 14, n. 403.
[444] DA bk. 2, lect. 21, n. 508.
[445] DA bk. 2, lect. 23, n. 545.

Merleau-Ponty and the perceived object

Earlier mention was made of Fabro's critique of Merleau-Ponty's thought. However, amid his negative appraisal of the French phenomenologist's thought, Fabro offers an insightful passage regarding how the "lived body" could be integrated in a Thomistic *Weltanschauung*:

> [The cogitative power] could be called the capacity for apprehending concrete values of "lived life," and it would be more precise to say of the "lived body," that is—if it can be expressed in this way—of the body in its positive and negative (that is, of pleasure and pain) reactions (relations) in its relations with the external physical world and with the physiological world itself both within and without the body in its own subjectivity, and above all in its positive and negative (that is, not only of pleasure and pain but even of fear, anxiety, hope, faith, impulses, reactions, fear, and trembling . . .) reactions (relations), that is, of the multiple attitudes of lived life within the self and in relation to its precise "life project." For these reasons, its object is not only just the "*formae*" but rather the "*intentiones*": the first regard the objective-formal aspect, the second the subjective-existential aspect. It is the phase of the concrete engagement of the existential self in its incommunicable singularity according to the whole range of its instances be it with respect to its being-in-the-world as well as with respect to being-in-the-body and with the very individual being in manifold whirl of the problems of existence, of the intertwining of knowing and will, of the never-settled feelings and never satisfied reflections[446].

The realm of the cogitative at its apex is the "ultimate peculiarity of the body's being"[447]. Let us, then, consider what Fabro means in more detail.

The cogitative power apprehends concrete values

In the previous chapter, mention was made of how the cogitative power can grasp the concrete values of objects. However, here Fabro emphasizes these values stem from "lived life", and, more precisely, from the "lived body". These considerations make it clear these concrete values are not simply imposed by the intellect strictly based upon the nature of the object; rather, they arise from the circumstances and life experiences of the individual. By emphasizing the body's role in these appraisals, we can understand that the value of an object might not be strictly linked to the intellectual value or the nature of the object *per se*. Rather, the body, with

[446] FABRO, *Essere nel corpo*, 113.
[447] FABRO, *Essere nel corpo*, 114.

its positive and negative reactions of pleasure and pain, responds, not only to the external physical world (with its objects), but also to its interior and exterior physiological conditions, as well as the whole gamut of complex emotions, dispositions, and attitudes within itself and within its "life project". This life project contains the concrete goals and aims that the self has proposed to itself and accepted as its concrete orientation in life.

Fabro's considerations here underscore two aspects of the value of objects: these values can be both *subjective* as well as *dynamic*, meaning, they are not fixed forever in time. Some examples can shed light on what Fabro means. Consider a cup of coffee: the objective reality, the substance that is present, is one. There is a basis in the real for the judgments that will be made: for instance, coffee contains caffeine, the chemical structure of which is able to interact in a particular way with adenosine receptors to counteract, to some extent, the effects of fatigue. Nevertheless, that activity, and other such effects, are appraised differently by different subjects, or even by the same subject at different times in their lives. Consider the particular value judgments given by three different individuals: one who is bothered by the coffee's acidity, one who is extremely tired, and another who enjoyed drinking coffee with their now-deceased grandmother. While the object of perception is the same for all, with all the same accidents, the value given to that same object by the different observers is likewise different. The first knows coffee causes them stomach pain, and hence coffee has acquired a negative value. The second knows the coffee will wake them up, and hence coffee, which in other circumstances might provide a mild attraction or positive value, here and now, in this moment, with these concrete circumstances, and with these bodily conditions, it acquires a much greater value for the subject. The third subject will likely experience a whole range of emotions and a flood of memories at the sight of the coffee. There might be tears, or laughter, or any range of emotional responses to an object that, for other observers, provides no such value. This is because that object, by means of the observer's lived life, has assumed intentions that are not merely based on accidental forms, but rather on the subjective condition of the observer. Consider, as well, that these reactions have developed over time. For instance, it is entirely

possible that none of the three observers drank or enjoyed coffee as children; it is only after time, and repeated exposure, the value judgment changed to favor the beverage. Furthermore, it is clear from this that with experience, a perceiver might judge the same object differently with regards to the possibilities for engaging and interacting with it. For instance, the professional kicker for an American football team sees opportunities where the novice kicker or the armchair quarterback would not. This is not simply based upon scientific measurements or calculated algorithms: it is ultimately based on the awareness of one's own body and what it is capable of, a point we will return to.

Fabro's point is that these reactions are not simply pulled from the memory: of course, the memory certainly has a role to play in storing these intentions and recalling them when necessary. However, what Fabro emphasizes is these values are *dynamic*, meaning that lived life and experiences can change and modify these judgments throughout time. Presumably the mechanism by which this takes place is by the formation of the *schema*. Likewise, when Fabro mentions the individual's "life project", we can understand that sometimes values are established, not simply based on the here-and-now, but rather in terms of longer goals and projections that an individual has in mind. For instance, consider three adolescents, the first of whom desires to become a professional soccer player, the second desires to become a physician, and the third desires simply to enjoy their present life. When presented with the opportunity to play soccer on the weekend, the first will likely jump at the opportunity, since such an event is in keeping with their life goals. The second will likely decline, judging study to be more important and of greater value than playing sports. The third will likely study the situation from a pragmatic point of view: if playing would seem to promise pleasure and enjoyment, they might accept. Otherwise, they will not. In this we see the cogitative power is responsible for realizing, here and now, the existential choice of style of life; the abstract goal becomes concrete in the choices of everyday life.

The concrete engagement of the existential self

Fabro notes that the action and interaction of the cogitative power is "the phase of the concrete engagement of the existential self in its incommunicable singularity according to the whole range of its instances"[448]. This phrase summarizes synthetically what has been discussed above, but with a particular emphasis on the *engagement with the concrete*. It is the cogitative power that keeps the perceiver in contact with the world and with reality; it is in light of this connection the schema develops and corresponds to "lived life". As was mentioned earlier, Fabro sees the cogitative power as responsible for the "persuasion of existence", and this precisely because it engages the world directly. We will return to the importance of this point in the next sections.

The cogitative power and the phantasm

A further aspect of Merleau-Pontian insights that can be helpful for Thomism is to consider what lights are shed on the phantasm, in particular, regarding the information contained therein. What sort of information is incorporated into the phantasm? Mention was made of the bodily schema in Merleau-Ponty. This schema includes not simply the spatial awareness of where body parts are located, but also the possibilities that are present for the person as being-in-the-world, including habits and styles of being. This is sometimes referred to as self-sensing, that is, "the interior experience of one's body…. In self-sensing we have a tacit sense of where our limbs are, what we are feeling and sensing, what we are able to do, and of our subjective interiority"[449].

There is at least a partial overlap with the notion of proprioception as understood by biologists: "Although familiar to each of us, the sensation of inhabiting a body is ineffable…. Proprioception, the sensation of body position and movement,

[448] FABRO, *Essere nel corpo*, 113.
[449] SPENCER, *Thomistic Hylomorphism and the Phenomenology of Self-Sensing*, vii, viii.

is fundamentally personal"[450]. The biological mechanism at play consists of various sensory neurons that provide feedback: this includes the retina, tactile feedback from the skin, and the archetypal sensor, the "mechanosensory neurons located within muscles, tendons, and joints"[451]. It seems that proprioception, at least in the biological understanding, is limited to simply knowing the position of appendages as they move and other physical data. The Merleau-Pontian bodily scheme, in contrast, includes not only this information, but also much more, such as the existential possibilities for the subject to engage with the world. For this reason, let us first consider the notion of proprioception, and then the broader notion of bodily schema, and how these Merleau-Pontian insights could be incorporated into Thomistic thought.

Proprioception as "seeing that one sees"

One notion of *proprioception* is simply to be aware that one senses, i.e., "one sees that one sees"[452]. In his work *The Discoursive Power*, Klubertanz makes brief mention of the topic of propriosensation (perhaps to distinguish it from perception *stricte dicta*, since there is no intention grasped, at least not explicitly) in his *The Discursive Power*. While it is important to address his claims, it must be stated at the outset that this propriosensation is not the same as proprioception that is understood by biologists. With particular reference to non-rational animals, Klubertanz writes:

> The external senses apprehend a given object according to certain proper sensile qualities and according to certain common ones. In addition to this, the sense of touch may give certain obscure but very important information concerning the state of the animal's body, its functioning well or ill, and so forth. All the sensations about the animal's own body may be called 'propiosensation.' The data of the external senses, if they are gathered by more than one, are united to each other and to propriosensation by the common sense. But whether the common sense carries on such a unifying process or not, it always perceives the *intentio sensus*. In other words, in the awareness of the common sense, there is always a complex object: the external object sensed and

[450] J. C. TUTHILL – E. AZIM, «Proprioception», *Current Biology* 28/5 (2018), in 10.1016/j.cub.2018.01.064 [21-7-2021], R194–R203. This article provides a clear summary of the factors involved in proprioception.

[451] TUTHILL - AZIM, «Proprioception», R196.

[452] ST I, q. 78, a. 4, ad 2: "as when someone sees that he sees".

> the animal itself as actually sensing, and, at least sometimes, the content of propriosensation. This complex object is then presented to the estimative[453].

For the Thomistic foundation of this theory, Klubertanz makes recourse to ST I, q. 78, a. 3 and a. 4. In particular, ad 2 of a. 4 speaks of the common sense's "discerning judgment" insofar as the common sense unifies all the varied sensations and is also aware of the act of sensing, "as when someone sees that he sees"[454]. Klubertanz's reasoning is as follows: the common sense unifies all sensory data, and this must certainly include sensory information, that is, information regarding "the sense that senses". For instance, an animal with an eye infection would not see properly; perhaps straight lines would appear as crooked or bent to them, as in the case of metamorphopsia. Since the sense data received is not in accord with the objective reality outside of the animal, implicit in the common sense, which unites all the sense data including the feel of the lines, is the self-sensing of the sensory distortion and hence of the illness that causes it. This could perhaps be understood as an application of the Thomistic principle *Quidquid recipitur ad modum recipientis recipitur*. What is received in the external senses is received according to the mode of that external sense: a sick or distorted external sense receives the data in a distorted way, and hence the inference can be made regarding the overall mode of the perceiver (sick or ill, damaged, and the like). As Klubertanz contends, this "complex object" is then presented to the estimative power to respond to. That animals have this sort of proprioception can be seen in how they react to painful stimuli: when a dog walks on a painfully hot surface, such as a concrete sidewalk warmed in the summer's heat, it will scurry and attempt to get off the surface and away from it. However, when that same stimulus of pain results from a broken paw, the dog will raise the one paw and hobble on the other three to

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[453] KLUBERTANZ, *The discursive power*, 236-237.

[454] ST I, q. 78, a. 4, ad 2: "The proper sense judges of the proper sensible by discerning it from other things which come under the same sense; for instance, by discerning white from black or green. But neither sight nor taste can discern white from sweet: because what discerns between two things must know both. Wherefore the discerning judgment must be assigned to the common sense; to which, as to a common term, all apprehensions of the senses must be referred: and by which, again, all the intentions of the senses are perceived; as when someone sees that he sees".

avoid the pain. Clearly, then, certain, and perhaps most, animals can, in a certain manner, sense their own bodies through their sensations.

Proprioception in biology as limb position and movement

Proprioception in the biological understanding consists in the feedback that is incorporated from the body regarding movement and sensation. It concerns less the existential possibilities of the mover (which is, rather, a focus for Merleau-Ponty) and more the biological mechanism whereby a person knows where their limbs are in space and how they can be moved. Such proprioception in the biological understanding is rarely noticed by us; it is simply implicit in our lives, and we generally give it little thought. Indeed, even when there are serious objective defects in our sensations, our bodies can often compensate so much that we might not even perceive the lacks[455].

However, when the systems that serve for our proprioception are damaged either through illness or trauma, then proprioception, or rather the lack of, comes to the forefront. Consider that certain cases of acute polyneuritis can destroy the neurons responsible for proprioception. The result is "a body deaf and blind to itself . . . it has no sense of itself"[456]. However, through therapy, the visual system and vestibular system can come to take over some of the functions of the destroyed neurons. The recovery is not perfect, but it shows that the perceiver can be taught to compensate for its losses. Such an intensive re-training seems to be beyond the abilities of other animals, perhaps because the relations between these systems is established by nature and non-human animals have limited abilities to override them. With a great deal of therapy and work, a human can develop new schema and begin to re-configure the way that they process proprioceptive information. Indeed, such a recovery is owed, at least in part, to the intervention of the cogitative power.

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[455] See O. SACKS, *The Man Who Mistook His Wife for a Hat*, Simon & Schuster, New York 1998, Chapter 7 «On the Level» regarding Mr. MacGregor who walked, unaware, with a severe tilt (about twenty degrees) to one side, a problem that was eventually corrected with special glasses.

[456] This is the case of "Christina" recounted in SACKS, *The Man Who Mistook His Wife*, 51.

Hence, proprioception, in the sense of knowing where limbs are located and how they move, is a kind of habitual, implicit knowledge. Indeed, it generally goes unnoticed as a sort of background knowledge. In other words, this sort of data is incorporated into the phantasm implicitly, a task which we might assign to the cogitative power, in that this information is incorporated into the phantasms by means of schema. We can judge that something is out of our reach, or that a floor is not flat, not because of the common sense, but rather because the cogitative power has formed certain schema that we in turn apply. Generally, this information is processed implicitly. However, optical illusions like the Thatcher illusion, wherein a grossly distorted face is judged to be normal when presented upside-down, reminds us that our perception of objects in space is not infallible.

Phenomenal versus objective

All these considerations bring to the forefront the discussion regarding the phenomenal and the objective. As was mentioned earlier, and as will be discussed in the subsequent section, Merleau-Ponty draws a distinction between the objective and the phenomenal, not simply in terms of the world, but also in terms of the body. The two aspects cannot simply be separated, yet, as will be examined, in cases of phantom limbs there is a disagreement between the phenomenal body (what the perceiver experiences or senses) and the objective body (what is actually the case, setting aside subjective conditions or considerations).

Ultimately, it seems there is no good solution for Merleau-Ponty's dilemma. However, in this, Aquinas is perhaps able to contribute to Merleau-Ponty, since the cogitative power is the faculty that grasps the concrete. This connection with the external world gives it a hold of reality in the here-and-now. Hence, the solution to the phenomenal-objective is that, while the phenomenal body (the lived body) might perceive or sense something, a lack of reference to an exterior object means that such a perception or sensation is not real, no matter how subjectively convinced the subject might be that they are perceiving. They have a subjective persuasion of reality, but not one that corresponds in fact to reality.

It seems that Merleau-Ponty implicitly grasps the need for a metaphysical reference to reality. He repeatedly states that perception is not an idealistic imposition of the mind on reality, nor it is simply the reception of sense data. One can distinguish between the phenomenal and objective but, as will become very clear in the case of phantom limbs, it is the objective that in a certain sense "triumphs" over the subjective. A person might perceive that they have a limb, but, in communication with others, it becomes "clear" the limb is not actually physically present, and hence the resolution must take place on the part of the perceiver through psychoanalysis and acceptance of the loss of the limb, and not on the contrary part, that is, that the masses must change their perception of reality to match that of the one who perceives they have a phantom limb.

The body schema

A final consideration wherein Merleau-Ponty can offer insights for Aquinas is concerning the French phenomenologist's understanding of the body schema. As mentioned earlier, the Merleau-Pontian body schema is more than simply a consideration of the spatial coordinates of limbs; it also includes "our lived possibilities such that it expresses our habits and our style of being-in-the-world"[457] and "all possible activities" as well[458]. The emphasis, then, appears to be on the lived life of the subject: their experiences, skills, and everything that is subsumed under that broad categorization. How could such experiences of lived life be explained in the Thomistic context? For Merleau-Ponty the solution clearly lies in the body. Likewise, Fabro contends that the solution lies in the body, but within a specific power: "[The cogitative power] could be called the capacity for apprehending concrete values of 'lived life,' and it would be more precise to say of the 'lived body'"[459]. From whence does Fabro reach this conclusion?

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[457] LANDES, *The Merleau-Ponty dictionary*, 32.
[458] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 68.
[459] FABRO, *Essere nel corpo*, 113.

One starting point is Aquinas' *Commentary on the Metaphysics*, a text we will refer to frequently. Here, Aquinas explains the difference between memory and experience (*experimentum*) as well as the role of the cogitative power:

> In men the next thing above memory is experience [*Supra memoriam autem in hominibus ... proximum est experimentum*], which some animals have only to a small degree [*quod quaedam animalia non participant nisi parum*]. For an experience arises from the association of many singular [intentions] received in memory [*Experimentum enim est ex collatione plurium singularium in memoria receptorum*]. And this kind of association is proper to man, and pertains to the cogitative power, also called particular reason, which associates particular intentions just as universal reason associates universal ones. Now since animals are accustomed to pursue or avoid certain things as a result of many sensations and memory, they seem to share something of experience, even though it be slight. But above experience, which belongs to particular reason, men have as their chief power a universal reason by means of which they live.
>
> And just as experience is related to particular reason [in men], and customary activity to memory in animals, in a similar way art is related to universal reason. Therefore, just as the life of animals is ruled in a perfect way by memory together with activity that has become habitual through training, or in any other way whatsoever, in a similar way man is ruled perfectly by reason perfected by art[460].

In other words, in "lived life" man grasps individual intentions of objects and stores them in his memory. As time goes on, he can form an *experimentum*, which Fabro often refers to as a schema. The *experimentum* incorporates a wide range of information: from motor movements, to knowledge about the possibilities of engagement, and more. Hence, the violinist, who has practiced her instrument for many hours, has *experimenta* that differ from the non-musician, the novice violinist, and the maestro pianist, and this precisely because the intentions or value of an object vary from person to person. The objective reality is the same: the different subjects perceive the same violin, with the same shape, color, and the like. However, the intentions offered or contained are precisely *unsensed.*

The body schema under abnormal or pathological conditions

The discussion above intends to explain the body schema under normal conditions. However, Merleau-Ponty insists that in many diseases, the infirmity is to be found precisely in a distorted body schema. To begin with, we can consider the case

[460] *Commentary on Aristotle's Metaphysics,* bk. 1, lect. 1, n. 15-16.

of hallucinations in general, to which Merleau-Ponty dedicates a lengthy section of *The Phenomenology of Perception*[461]. The French phenomenologist contends, as he does for other topics elsewhere, that both empiricism and intellectualism fail to understand what happens when a subject hallucinates. The former attempts to explain hallucinations "in the same way as it does perception: through the effect of certain physiological causes, the irritation, for example, of certain nervous centres, sense-data appear as they appear in perception through the action of physical stimuli on those same nerve centres"[462]. The latter likewise errs by considering hallucinations as erroneous judgment, interpretation, or belief[463].

The facts, however, point in a different direction. Indeed, the neural activation theory of the empiricists is proven wrong because "false perceptions are not genuine perceptions at all. The victim of hallucinations cannot hear or see in the genuine sense of these words. He judges and believes that he sees or hears, but he does not really see or hear"[464]. In other words, the schizophrenic who sees snakes does not actually have snakes activating his optic nerves. He does not really see snakes, at least not in the truest sense of the word. As for the intellectualists, Merleau-Ponty contends that this school of thought tries "to get rid of hallucination properly speaking, to construct it, and to deduce what it might be from a certain idea of consciousness"[465]. However, they seem to ignore that hallucinating persons can distinguish their hallucinations from real perceptions:

> The subject who, in delirium tremens, takes the doctor's hand to be a guinea pig, is immediately aware of the fact when a real guinea pig is placed in his other hand. The fact that patients so often say that someone is talking to them by telephone or radio, is to be taken precisely as expressing that the morbid world is artificial, and that it lacks something needed to become a 'reality'…. Alain quotes Montaigne's words on madmen 'who believe they see what they do not really see'. But in fact the insane do not believe they see, or, when questioned, they correct their statements on this point. A hallucination is not a judgement or a rash belief, for the same reasons which prevent it from being a sensory content: the judgement or the belief could consist only in

[461] See MERLEAU-PONTY, *Phenomenology of Perception*, 334-345.
[462] MERLEAU-PONTY, *Phenomenology of Perception*, 335.
[463] Cf. MERLEAU-PONTY, *Phenomenology of Perception*, 335.
[464] MERLEAU-PONTY, *Phenomenology of Perception*, 336.
[465] MERLEAU-PONTY, *Phenomenology of Perception*, 335.

> positing the hallucination as true, and this is precisely what the patients do not do. At the level of judgement they distinguish hallucination from perception[466].

If neither empiricism nor intellectualism explain the presence of hallucinations, how does Merleau-Ponty propose to explain them? The answer lies in the body and the body image, which is disturbed. "The hallucination," notes the French phenomenologist, "is not in the world but 'before' it, because the patient's body no longer enjoys its insertion into the system of appearances. All hallucination bears initially on one's own body"[467]. The hallucination is not in the world, meaning, something that is actually outside of the hallucinator. Rather, it concerns the way the body is in the world: "Depersonalization and disturbance of the body image are immediately translated into an external phantasm, because it is one and the same thing for us to perceive our body and to perceive our situation in a certain physical and human setting, for our body is nothing but that very situation in so far as it is realized and actualized"[468].

Merleau-Ponty explains the origin of hallucinations as follows:

> There are hallucinations because through the phenomenal body we are in constant relationship with an environment into which that body is projected, and because, when divorced from its actual environment, the body remains able to summon up, by means of its own settings, the pseudo-presence of that environment…. The hallucination is not a perception, but it has the value of reality, and it alone counts for the victim. The world has lost its expressive force, and the hallucinatory system has usurped it. Although hallucination is not a perception, there is a hallucinatory deception, and this is what we shall never understand if we take hallucination to be an intellectual operation. However different it is from a perception, hallucination must be able to supplant it, and exist for the patient in a higher degree than his own perceptions[469].

The body is capable of "summoning up … the pseudo-presence" of an environment, one that does not actually affect the external senses. However, it appears to the hallucinator to be reality, although not entirely real for the reasons mentioned.

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[466] MERLEAU-PONTY, *Phenomenology of Perception*, 334-335.
[467] MERLEAU-PONTY, *Phenomenology of Perception*, 339.
[468] MERLEAU-PONTY, *Phenomenology of Perception*, 339-340.
[469] MERLEAU-PONTY, *Phenomenology of Perception*, 340, 342.

This understanding of Merleau-Ponty is in some regards quite like the teaching of Aquinas in his commentary on the fourth book of the Sentences. Regarding those who will rise in the resurrection of the body, Aquinas notes the following:

> And so others say that the act of sensation will happen not indeed by receiving from external sensible things, but by an overflow from higher powers, so that as higher powers receive from lower ones now, so conversely, lower ones will receive from higher ones then. But that movement of receiving does not cause true sensation, for every passive power according to the account of its own species is directed to some specific active thing; for a power, as such, has an order to whatever it is said in regard to. Therefore, since the proper active thing in an external sense is a thing existing outside the soul, and its intention does not exist in the imagination and reason, if a sense organ is not moved by something outside it, but by the imagination or other higher powers, it will not truly sense. *Therefore, we do not say that madmen and other mentally handicapped people* [*quod phrenetici et alii mente capti*]*, in whom because of the victory of the imaginative power a flow like this happens of the species into the sense organs, are truly sensing, but that it seems to them that they sense*[470].

Here, Aquinas seems to echo the Merleau-Pontian thought: in *phrenetici*, the imagination "flows over" into the species of the sense organs. This is not truly sensation, but to those so afflicted "it seems to them that they sense". Aquinas does not qualify whether such people are convinced of the reality of these impressions, but simply that it seems to them that they are sensing something. It is clear that, no matter what medical condition might correspond to *phrenetici*, Aquinas understands it as involving hallucinations. Aquinas seems to allow a role of the memory in hallucinations as well, as a text from the second book of the SCG indicates. Considering the role of phantasms in the context of disproving the existence of one intellect for all men, Thomas notes the following: "Nor are we hindered on account of phantasms, because it is in our power to form phantasms adapted to the consideration that we wish to make—unless, perhaps, there be an obstacle on the part of the organ to which the phantasm appertains, as happens in madmen and those suffering from lethargy [*in phreneticis et lethargicis*], who cannot freely exercise their imagination and memory"[471].

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[470] *Super Sent*., lib. 4 d. 44 q. 2 a. 1 qc. 3 co. Emphasis added.

[471] SCG II, c. 73: "Nec impedimur propter phantasmata: quia in potestate nostra est formare phantasmata accommoda considerationi quam volumus; nisi forte esset impedimentum ex parte organi cuius est, sicut accidit in phreneticis et lethargicis, qui non possunt habere liberum actum

This attribution of hallucinations to the internal senses, and hence to the body, is constant throughout the works of Aquinas. Although the intellect does not rely on a bodily organ for its proper act, disturbances in the body can impede the execution of its act. As Aquinas notes in ST I-II, q. 48, a. 3, regarding anger inhibiting the use of reason:

> Although the mind or reason makes no use of a bodily organ in its proper act, yet, since it needs certain sensitive powers for the execution of its act, the acts of which powers are hindered when the body is disturbed, it follows of necessity that any disturbance in the body hinders even the judgment of reason; as is clear in the case of drunkenness or sleep. Now it has been stated that anger, above all, causes a bodily disturbance in the region of the heart, so much as to effect even the outward members. Consequently, of all the passions, anger is the most manifest obstacle to the judgment of reason, according to Ps. 30:10: *My eye is troubled with wrath*[472].

Although the text cited mentions drunkenness as an example of a bodily condition impeding the use of reason, elsewhere Thomas mentions that the intellect's activity can be impeded when the intellect's command goes "to the other powers that operate through a bodily organ, due to an impediment in which an impediment arises in the activity of the intellect, as is clear in those who are delirious [*phreneticis*]"[473]. In another text Aquinas is more explicit that a physical injury or lesion can have the same effect: "Hence when the imagination is injured through injury to the organ [*unde laesa imaginatione per laesionem organi*], as in the case of the feverish [*ut est in phraeneticis*], the intellect is impeded from actual consideration even of what it used to know previously"[474].

Based on the science of his day and the thought of Aristotle, Aquinas proposes a mechanism whereby these hallucinations might occur. In *De Malo*, q. 3, a. 4, when speaking of how the demons tempt humans, Aquinas, following the indications of an

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phantasiae et memorativae". Yet, in ST I, q. 84, a. 7, corpus, the division is clearer: "Videmus enim quod, impedito actu virtutis imaginativae per laesionem organi, ut in phreneticis; et similiter impedito actu memorativae virtutis, ut in lethargicis".

[472] ST I-II, q. 48, a. 3, corpus.

[473] *Super Sent.,* lib. 3 d. 15 q. 2 a. 3 qc. 2 ad 2

[474] *Super Sent.*, lib. 2 d. 20 q. 2 a. 2 ad 3. See also ST I, q. 84, a. 7, corpus (cited above) and *In duodecim libros Metaphysicorum Aristotelis expositio*, bk. 4, lect. 14, n. 694, regarding whether the external senses err regarding their proper objects: "sicut patet in phreneticis in quibus organum phantasiae est laesum".

Aristotelean text, draws a comparison between sleep, drunkenness, *phreneticis*, and temptation. The text here offers a synthetic presentation of how Thomas understood hallucinations:

> The appearance or representation of the sensory forms retained in internal sense organs can be accomplished by some local movement of corporeal matter. Similarly, the Philosopher, in assigning the causes of apparitions in dreams, says in his work *On Sleep and Wakefulness* that if animals are asleep, most of their blood goes back to its sensory source. And the movements or impressions left by the movements of perceptible objects, movements or impressions retained in sensory vapors, accompany the blood. And the movements or impressions move the sources of perception in such a way that they seem as if external things themselves were at that moment affecting the sources of perception.
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> Therefore, what happens in the case of those asleep regarding the apparitions of dreams from the local movement of vapors and fluids can happen by the like [*sic*] local movement achieved by devils, sometimes in those asleep, and sometimes in those awake. And in the case of those awake, devils can sometimes indeed move internal vapors and fluids even to the point that the use of reason is completely fettered, as is evidently the case with the possessed. For it is clear that great disturbance of the vapors and fluids prevent activities of reason, as is evident in the case of the insane and sleepers and drunks [*manifestum est enim ex magna perturbatione spirituum et humorum impediri rationis actum, ut patet in phreneticis et dormentibus et ebriis*]. And devils can sometimes move internal vapors and fluids without fettering reason[475].

In short, internal vapors and fluids which carry the sensory traces of past experiences and which can be combined in different ways overflow from the imagination and memory; this overflow not only makes these recollections seem to exist, but also impede the intellect from carrying out its proper activities. It should be recalled as well that Aquinas also mentions an organic lesion could lead to the same consequences.

The question arises: why do the *phreneticis* maintain that they are sensing something? In other words, why are those sensations affirmed as existing, even though they are not as "real" as reality, according to Merleau-Ponty? The answer seems to lie in the cogitative power, since it is precisely this power which applies the universal activity of the intellect to the particular case at hand. For instance, Aquinas notes that "since reason syllogizes in a certain way in acts to be carried out, reason's judgment is

[475] *De Malo*, q. 3, a. 4, corpus.

found in the major proposition, which is universal. But in the minor proposition, which is particular, there is an admixture of passion, which is vigorous concerning the particular. Hence a corruption of reason follows in the conclusion of the choice"[476]. It is the cogitative power's judgment regarding a particular hallucination that erroneously affirms its existence.

Indeed, this is the position of Fabro. In *FP*, Fabro mentions, in passing, the phenomena of hallucinations appears to follow the same basic principles as illusions: the process of perception is essentially normal[477]. What is erroneous, as Fabro studies at length in *PP*, is the subject's "*perceptive persuasion* of existence"[478]. In other words, the patient is convinced of the existence of voices, sounds, or colors that are not in fact present. Fabro proposes that this attribution of existence pertains to the cogitative power:

> In the perception of existence, the scheme and the sensory data must reach a sort of "equilibrium" or "coherence": it is from them that the persuasion of existence is born. This persuasion arises, as far as I am able to understand, in the bosom of the operation by which the perceptive scheme is actualized and therefore I believe that it pertains properly to the cogitative power. The persuasion of existence is of a practical order and, *practically* for many objects, indeed for the majority of those that form the ambit of our life, it is a matter of a persuasion of utmost certainty. Practical certainty does not mean probability, far from it; it means that it is a persuasion founded, not on abstract principles, but on the *dependence* that in fact the subject experiences, in the act of perception, from external reality. The cogitative power, as the faculty of lived life, is aimed directly at the concrete satisfaction of biological needs, and so it is found committed to regulating itself, in its activity of structuring experience, so that the perceptive construction harmonizes at the same time with actual data and remains in solidarity with the development of past life[479].

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[476] *Super Sent.*, lib 2 d. 24 q. 3 a. 3

[477] See FABRO, *FP*, 213: "Dal punto di vista *psicologico*, si è visto che l'illusione non differisce da una qualsiasi altra percezione ed obbedisce alle stesse leggi di struttura e di integrazione". The sentence ends with a footnote reference, n. 10, reads: "Lo stesso principio sembra valere per le allucinazioni", followed by a citation of Glück to the same effect.

[478] FABRO, *PP*, 375: "*persuasione percettiva* di esistenza". Emphasis in original.

[479] FABRO, *PP*, 377: "Nella percezione di esistenza lo schema e i dati sensoriali hanno da raggiungere una specie di «equilibrio» o «coerenza»: è da essi che nasce la persuasione di esistenza. Tale persuasione sorge, per quanto riesco a comprendere, in seno alla operazione per cui si attua lo schema percettivo e perciò ritengo che appartenga in proprio alla cogitativa. La persuasione di esistenza è di ordine pratico e, *praticamente* per molti oggetti, anzi per la maggioranza di quelli che formano l'ambito della nostra vita, si tratta di una persuasione di massima certezza. Certezza pratica non significa probabilità, tutt'altro; significa che si tratta di

Later, in *DEAE*, Fabro comes to explicitly attribute this same conviction of existence, or natural faith in immediate perceptions, to the *vis cogitativa*[480]. Hence, to summarize Aquinas and Fabro, one could say hallucinations themselves result from an overflowing of sensory data from the memory and imagination, so much so that the person experiences the sensory data as actually present. However, it is the cogitative power that affirms or denies the existence of such a stimulus; in other words, a person can hallucinate (the result of the sensory overflow) but, if the cogitative power refuses to assent to the existence of these stimuli, the subject recognizes them as a hallucination. However, as we will further examine when considering the modification of the bodily schema, contemporary medicine can provide examples where the subject is entirely convinced of the reality of their delusion.

What are the insights from Merleau-Ponty's understanding of the bodily schema, and particularly of the cases of hallucinations? First and foremost, Merleau-Ponty and Aquinas would agree the source of such hallucinations has its roots in the body and the way the body is in the world. Per Aquinas, given that the intellect and will are spiritual faculties, proceeding from the soul itself, the form of the body, they are not subject to physical or biological illness *per se*[481]. One can speak, as Aquinas often does, of the influence of the passions ("blinded by rage", as though rage had caused a physical defect) or of vice ("darkness of mind", as though sin had somehow

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una persuasione fondata, non su principî astratti, ma sulla *dipendenza* che di fatto sperimenta il soggetto, nell'atto della percezione, dalla realtà esteriore. La cogitativa, come facoltà della vita vissuta, è volta direttamente alla soddisfazione concreta dei bisogni biologici, e si trova perciò impegnata a regolarsi, nella sua attività di strutturazione dell'esperienza, in modo che la costruzione percettiva armonizzi ad un tempo con i dati attuali e resti solidale con lo sviluppo della vita passata".

[480] See FABRO, *DEAE*, 419-422. For an examination of natural faith in Fabro, see the section «The Process of Human Knowledge in Aquinas and the Importance of the Cogitative Power» in M. J. NAVARRO MUÑOZ, *The Contribution of Cornelio Fabro to Fundamental Theology*, Cambridge Scholars Publishing, Cambridge 2023: 62-68.

[481] In this regard, Thomas Szasz has an interesting point when he denies the existence of mental illness. On one hand, if the "mental" of mental illness is to be referred to the intellect, then it could be accepted. However, he maintains that mental illness itself is an invention or creation, which seems rather unfounded and extreme. See T. S. SZASZ, *The myth of mental illness*, Harper Collins, New York 1974, and, by the same author, *Schizophrenia*, Syracuse University Press, Syracuse, N.Y 1988.

produced physical ramifications), but these refer either to the effects that redound to the body, or to the influence of the body, via the cogitative power, on the intellect and will, affecting its judgments. Although sometimes theologians speak of the spiritual sickness of sin, this is to understand illness in a moral, and not biological, sense[482]. As a corollary to this, we can note the external and internal senses are those affected by illness, precisely because these rely on a corporeal organ for their functioning. To carry out the intellect's decisions, the intellect relies on these lower faculties, and hence a defect or illness in these can produce consequences, not in the intellect or will itself, but rather in the faculties that serve to carry out its bidding.

Language and the body schema

Merleau-Ponty insists that language and the body schema are intimately related. Mention was already made of the relation between language and the body: "Language is the indissoluble extension of all physical activity and at the same time it is quite new in relation to that physical activity. Speech emerges from the 'total language' as constituted by gestures, mimicries, etc."[483]. The "total language," then, includes such things as the aptly named body language and other non-verbal forms of communication. For this reason, language is also intimately related to the body schema: "This action at a distance by language, which brings significations together without touching them … are eminent cases of corporeal intentionality"[484].

Language is also closely related to perception, both of other people as well as the world at large. Regarding the first, in *The Phenomenology of perception* Merleau-Ponty notes that "there is one particular cultural object which is destined to play a crucial role in the perception of other people: language"[485]. Part of language's almost being-like nature is to be found in this social aspect. "As soon as man uses language to

[482] For an examination of how Fabro explains this influence of the passions on the intellect and will *apropos* freedom, see my licentiate thesis: N. DREYER, *Freedom in Saint Thomas according to Cornelio Fabro*, The Catholic University of America, Washington, D.C. 2014.
[483] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 12.
[484] MERLEAU-PONTY, «On the Phenomenology of Language» in *Signs (SPEP)*, 89.
[485] MERLEAU-PONTY, *Phenomenology of Perception*, 354.

establish a living relation with himself or with his fellows", indicates Merleau-Ponty, "language is no longer an instrument, no longer a means; it is a manifestation, a revelation of intimate being and of the psychic link which unites us to the world and our fellow men"[486].

As it is of particular interest for our study, as well as for providing a foundation for future chapters, we will examine the development of language usage in the child, as well as how language relates to pathological conditions.

Development of language in the child

The intimate relation between language, thought, and body means growth should take place in language, just as the child develops in their notion of body and develops in their thought process. Indeed, Merleau-Ponty affirms this when he writes that "experience shows that language has as much influence on thought as the inverse… From this perspective, to learn to speak is to coexist more and more with the environment. Living in this environment incites the child to recapture language and thought for his own means"[487]. Language is a particular way in which the child is embodied in the world, and it is language that helps mediate between the various facets of his life: "Thought inhabits language and language is its body. This mediation of the objective and of the subjective, of the interior and of the exterior—what philosophy seeks to do—we can find in language if we succeed in getting close enough to it"[488].

Of particular interest is what Merleau-Ponty observes regarding the process of the development of language in the child, and, in a particular way, of the child's first words. A first fact indicated by the French phenomenologist is that the child's first words do not perfectly correspond to "adult words":

> The child's first words are often distinct from adult words. Often they are uttered according to their onomatopoetic value (hence the relationship through resemblance). But even if the child uses an adult word, the meaning is always more ephemeral. Often

[486] MERLEAU-PONTY, *Phenomenology of Perception*, 196.
[487] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 50.
[488] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 102.

> a single word will designate a group of things are applicable to a similar situation (for example, 'music' for: music, military music, and soldiers)[489].

There must be some development that takes place with respect to these words. An example offered by Merleau-Ponty is the following: "It is at this moment, writes Grégoire, that his son's first word appeared, a word designating the train which passed in front of his house. This was a particular word which gave a name to a single thing, or a set of things (the train, the emotion released by its passing, etc.). Above all, it translated an effective state"[490]. The word, "train" or something akin, encompassed a vast content that in adults would not be included; the adult word is much more restricted, and adults have other words to express the different concepts that were formerly included in the one (e.g., the train, the emotion it causes, and the like). For this reason, Merleau-Ponty can point out that "the child uses certain words before he fully understands their signification, in the way that the adult, when learning a foreign language, uses certain locutions of which he does not know the meaning but which he knows how to apply in the appropriate situation"[491].

Eventually, such a defective usage must be corrected. This correction will arise from contact with others and interacting with them. Since language is a bodily function or task and is intimately involved in perception, we could apply to language the words of Merleau-Ponty regarding behavior in general: "The perception of behavior in other people and the perception of the body itself by a global *corporeal schema* are two aspects of a single organization that realizes the identification of the self with others"[492]. Likewise, "When I witness the setting in of the behavior of others, my body becomes a means of understanding them, my corporality becomes a comprehending power of their corporality—I regain the final meaning (the *Zwecksinn*) of other people's behavior, because my body is capable of achieving the same goals"[493].

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[489] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 18.
[490] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 16.
[491] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 76.
[492] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 36.
[493] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 42.

We can indicate several points of agreement between Merleau-Ponty and Aquinas regarding language development. First, Aquinas also mentions this broad content involved in a child's word, and traces it back to faulty phantasms in the child's brain. As he writes in his commentary on the second book of *Sentences*:

> Hence, just as indetermination and confusion in the act of the power of sight follow on the confusion of colors, so also a certain confusion in the act of the intellective power follows on the confusion of phantasms. And so it is that children in the beginning possess a confused knowledge of some universals and afterwards through the succession of time come to know each thing distinctly. Hence in the *Physics* 1 it is said that children in the beginning call every man "father," but later designate each individual[494].

As children grow and lose their excessive wetness, their phantasms will become clearer. However, in his commentary on the passage from the *Physics*, Aquinas goes into greater detail considering this process of correction, drawing an analogy with the way in which adults perceive objects:

> Next, at *similarly, a child* (184b12), he gives the third example taken from the more universal sensible. For as the more universal intelligible is first known to us intellectually—for example, animal is known before man—so the more common sensible is first known to us according to sense—for example, we know this is an animal before we know this is a man. And I say "first according to sense" both with reference to place and with reference to time. This is true according to place, for when someone is seen at a distance, we perceive him to be a body before we perceive that he is an animal, and an animal before we perceive him to be a man, and finally we perceive that he is Socrates. And in the same way, with reference to time, a boy apprehends this individual as some man before he apprehends this man, Plato, who is his father. And this is what he says, *children begin by calling all men "father" and all women "mother," but later on distinguish*; that is, they know *each* determinately. From this, it is clearly shown that we know a thing confusedly before we know it distinctly[495].

Aquinas' point is that, just as adults perceive something at a distance as a body, and then as an animal, then a man, and then Socrates, children also perceive things in broader categories, and then reduce or restrict them to what the "adult word" refers to. This agrees with Merleau-Ponty's contention that children use adult words to refer to a group of similar things rather than the actual content of the adult word.

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[494] *Super Sent.*, lib. 2, d. 20, q. 2, a. 2, corpus

[495] *Commentary on Aristotle's Physics*, bk. 1, lect. 1, n. 11. Emphasis in original.

Likewise, the choice of "father" and "mother" as exemplars seems to be a very deliberate choice by Aristotle and by Aquinas following him. Not only are these examples ubiquitous in humans, but they also contain a social aspect as they refer to relations[496]. Hence, Aristotle and Aquinas admit, at least implicitly, the possibility of others helping children to develop their use of the words to match the adult usage, that is, to help them pass from confused knowledge to distinct knowledge.

Lastly, we can ask to which internal sense Aquinas would attribute this determinate knowledge, that is, to know individuals distinctly. In DA, bk. 2, lect. 13, n. 398, Aquinas attributes this function to the cogitative: "The cogitative apprehends the individual as existing under a common nature, and this is because it is united to intellect in one and the same subject". Fabro contends that "on account of this participation the cogitative can be called κατ΄ἐξοκήν [*par excellence*] the perceptive faculty of concrete objects"[497]. In the following chapters, the particular way in which language carves out these determinate and particular pieces of reality will be examined but, for the present, we simply note that the cogitative power must have a connection with language.

Language in pathological conditions

Language also shapes the perception of the world. In a particularly revealing passage from *The Phenomenology of perception*, Merleau-Ponty explores how language affects the child and can "bring the thing expressed into existence". Given the intimate connection between the body, language, and perception, we would expect that language would be involved in some manner in the cases of pathological

[496] Elsewhere, Aquinas refers to the role of names regarding the things to which they refer: e.g., in *De Potencia*, q. 9, a. 3, ad 1, we read "Two things must be considered in a name: that which it is intended to signify and that from which it is taken for the purpose of signification. For a name is often given to signify a certain reality based on some accident or action or effect of that reality; and yet these are not what are principally signified by the name, but rather the very substance of the reality. Thus, the word *lapis* ('stone') is taken from *laesio pedis* ('hurting of the foot'), yet it does not signify this but rather a body wherein such an accident is frequently found, so that *laesio pedis* belongs to the etymology of the word *lapis* rather than to its signification".

[497] FABRO, «PPS», 58.

perception. Indeed, Merleau-Ponty affirms as much, with citations from several case studies: "For example, amnesia concerning names of colours, when related to the general behaviour of the patient, appeared as a special manifestation of a more general trouble. The same patients who cannot name colours set before them, are equally incapable of classifying them in the performance of a set task"[498]. In other words, a patient who could not remember the names of different colors could not separate differently colored objects, even if he was not required to name the colors. A significant aspect of perception and the subject's being in the world was affected by a "linguistic" disorder. This connection is seen even more clearly in Merleau-Ponty's analysis of a case study presented by Kurt Schneider:

> Perceptual disturbances, from this point of view, could be only sensory deficiencies or gnosic disturbances. Schneider's case, on the other hand, shows deficiencies affecting the junction of sensitivity and significance, deficiencies which disclose the existential conditioning of both. If a fountain pen is shown to the patient, in such a way that the clip is not seen, the phases of recognition are as follows. 'It is black, blue and shiny,' says the patient. 'There is a white patch on it, and it is rather long; it has the shape of a stick. It may be some sort of instrument. It shines and reflects light. It could also be a coloured glass.' The pen is then brought closer and the clip is turned towards the patient. He goes on: 'It must be a pencil or a fountain pen.' (He touches his breast pocket). 'It is put there, to make notes with.' It is clear that language intervenes at every stage of recognition by providing possible meanings for what is in fact seen, and that recognition advances *pari passu* with linguistic connections: from 'long' to 'shaped like a stick', from 'stick' to 'instrument', and from there to 'instrument for noting things down', and finally to 'fountain pen'[499].

Language and perception go hand in hand in visual agnosia, as this disease is known. We can consider another case study, which will perhaps be clearer to approach from a Thomistic perspective in order that we can eventually determine if the cogitative power is somehow at fault, which would then also shed light on the cogitative power's role in language.

Our case study is that of Dr. P., from which Oliver Sacks' *The Man Who Mistook His Wife for a Hat* takes its title. Dr. P. was unable to identify common objects. Presented with a red rose, the patient described it as "about six inches in length, a

[498] MERLEAU-PONTY, *Phenomenology of Perception*, 175.
[499] MERLEAU-PONTY, *Phenomenology of Perception*, 131.

convoluted red form with a linear green attachment"; it was only identified as a rose after the patient smelt it. Likewise, a glove was presented: the description the patient gave was "a continuous surface, infolded on itself. It appears to have five outpouchings", and called the glove "a container"[500]. Even while watching a film, the patient was unable to identify expressions of the actors' faces: his descriptions of "passion, surprise, disgust, and fury . . . were positively Martian"[501].

Let us consider, briefly, the case of Dr. P. according to the perspective of Thomistic external and internal senses: as Sacks remarks, the patient's external sense organs, and particularly those related to vision, are intact. The problem is not with the patient's memory: upon smelling the rose, he could name it, but with only the visual perception he could not. Could the problem reside in the common sense? Sacks notes that the patient was permitted to handle both the flower and the glove, thus employing the sense of touch and sight simultaneously regarding the same object, and yet could not name them. It seems, then, the sensory data is received without difficulty; the common sense can form the synthesis, but what is lacking is the ability to recognize the rose as a rose, the glove as a glove. To "apprehend the individual thing as existing in a common nature. . . to be aware of a man as this man, and this tree as this tree" is precisely a function of the cogitative power, and it is this which fails in patients with visual agnosia[502].

A final question remains to be considered: does the body schema change over time and, if so, how does it grow, develop, or receive modification? This question can be considered, first, regarding normal development, and then, with regard to pathological conditions that concern the body schema.

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[500] SACKS, *The Man Who Mistook*, 14.

[501] SACKS, *The Man Who Mistook*, 13.

[502] In DA bk. 2, lect. 13, n. 398. It is noteworthy that Dr. P. was able to identify the rose after smelling it; sometimes he would identify people but only by one salient feature. This seems to be typical at least in some cases of visual agnosia.

Normal growth and development of the body schema

On the one hand, the answer to the question as to whether or not the body schema can grow and develop is clear for Merleau-Ponty: in *Child Psychology and Pedagogy,* in lecture notes from his classes at the Sorbonne, the French phenomenologist traces the development of the child from birth to approximately three years of age. Special attention is paid to how the child perceives themselves and, by means of their body, other people as well. We find such comments as: "The Child from Zero to Six Months: *This is the initial stage*. The child puts in place his body schema and begins to perceive others"[503]. Merleau-Ponty notes that part of the development of the body schema is biological: "It is only between three and six months that the soldering between external and internal (myelination) occur. While this soldering is not realized, perception is not possible because the body must equilibrize itself for perception to work … *No total body schema yet exists*"[504]. After myelination takes place, a relation is forged between the feet and hands; eventually the child comes to pay attention to their own body: "True attention to the body is late; attention to the right hand occurs on the 115th day, exploration of the left hand by the right hand occurs in the 23rd week, and a perplexity when a glove is placed next to the hand occurs in the 24th week. Consciousness of one's own body is first of all fragmentary"[505].

Merleau-Ponty notes several important milestones: "after six months, the child acquires a visual representation of his own body due to the mirror and specular image"[506]. However, "*the child's recognition of the other's specular image* is more precocious than the child's recognition of his own specular image"[507]. It is for this reason a child will smile at his father's image in the mirror, but is surprised and turns around when his father speaks to him; the child thinks the image and the model of that image (i.e., the reflection of the father and the father himself), are two different beings

[503] MERLEAU-PONTY, *Child psychology and pedagogy*, 248. Emphasis in original.
[504] MERLEAU-PONTY, *Child psychology and pedagogy*, 249. Emphasis in original.
[505] MERLEAU-PONTY, *Child psychology and pedagogy*, 249. Emphasis in original.
[506] MERLEAU-PONTY, *Child psychology and pedagogy*, 250.
[507] MERLEAU-PONTY, *Child psychology and pedagogy*, 250. Emphasis in original.

which have their "*own independent existences*"[508]. This is corrected only as the child matures. The child develops over time, not only biologically but also with respect to their knowledge of their own body aided by their knowledge of others. Hence, that the body schema develops over time is a given for Merleau-Ponty.

Pathological development and modification of the body schema according to Merleau-Ponty

However, Merleau-Ponty also indicates several pathological conditions that can affect the body schema. One such case is that of phantom limbs. A phantom limb, and sometimes its associated phantom pain, occurs when a limb is amputated or lost, and yet the patient continues to feel the limb and often suffers from pain in the non-existent appendage. In *Consciousness and the Acquisition of Language*, Merleau-Ponty offers a synthetic reading of this phenomena in the key of being-in-the-body. As he writes:

> The whole classical theory of hallucination has been built on the example of the *phantom limb*. Now, the perception of the phantom limb has been reinterpreted; and the conclusions of the interpretation are absolutely incompatible with the classical conception of a perception provoked by the direct excitation of nerve centers. The patient had, for many months, lost the use of his fifth finger. After the amputation, he had the illusion of a phantom arm with a four-fingered hand. If the absence of feeling for a period of time is sufficient to block this illusion, it cannot be a question of an excitation of nerve centers. In this case, it is a question of a global phenomenon. The illusion is founded on a *corporal scheme* or body image (which is the scheme of all possible activities, rather than a scheme of the actual bodily state)[509].

The underlying principle of Merleau-Ponty's understanding is that the physical body, with its limbs and parts arranged in space, is not the same as the *corporal schema*; for this reason, the two can differ. Phantom limbs are also the subject to a lengthy examination in *The Phenomenology of Perception*, often considered alongside the negative or contrary case of anosognosia, wherein a person has an injured or useless limb but refuses to recognize it as part of their body. For instance, in cases of anosognosia "subjects who systematically ignore their paralysed right hand, and hold out their left hand when asked for their right, refer to their paralysed arm as 'a long,

[508] MERLEAU-PONTY, *Child psychology and pedagogy*, 251. Emphasis in original.
[509] MERLEAU-PONTY, *Consciousness and the Acquisition of Language (SPEP)*, 68. Emphasis in original.

cold snake'"[510]. Merleau-Ponty makes several claims regarding both phantom limbs and anosognosia that indicate the solution to these pathologies is not to be found from a merely biological or physiological perspective, nor from a psychological perspective, citing the studies found in Jean Lhermitte's *L'Image de notre corps*[511].

On the physiological side, Merleau-Ponty notes that "anaesthesia with cocaine does not do away with the phantom limb, and there are cases of phantom limbs without amputation as a result of brain injury"[512]. At the same time, "no psychological explanation can overlook the fact that the severance of the nerves to the brain abolishes the phantom limb"[513]. In other words, there is certainly a physiological component to phantom limbs, but the explanation cannot be purely physiological[514]. The same can be said of psychological explanations: we cannot ignore that "an emotion or circumstance, which recalls those in which the wound was received, creates a phantom limb in

[510] MERLEAU-PONTY, *Phenomenology of Perception*, 76.

[511] J. LHERMITTE, *L'Image de notre corps*, Nouvelle Revue Critique, Paris 1939. This is literally what Merleau-Ponty concludes: on p. 77, ftn. 3, we read: "The phantom limb lends itself neither to a purely physiological explanation, nor to a purely psychological one. Such is the conclusion of J. Lhermitte, *L'Image de notre Corps*, p. 126". Likewise, "Anosognosia and the phantom limb lend themselves neither to a physiological nor to a psychological explanation, nor yet to a mixture of the two, though they can be related to the two sets of conditions": MERLEAU-PONTY, *Phenomenology of Perception*, 80.

[512] MERLEAU-PONTY, *Phenomenology of Perception*, 76.

[513] MERLEAU-PONTY, *Phenomenology of Perception*, 77.

[514] It is necessary to point out that here, as we will explain in greater detail later, that Merleau-Ponty's understanding is not entirely in line with current biological and medical research. For instance, as N. DOIDGE, *The Brain That Changes Itself*, Penguin, New York, 2007, 181, notes, "Some doctors tried to deal with phantoms by serial amputations, cutting back the limbs—and nerves—farther and farther, hoping the phantom might disappear. But after each surgery it reemerged". The whole seventh chapter (entitled "Pain: The Dark Side of Plasticity", 177-195) deals with the studies of V. S. Ramachandran and phantom limbs. The text refers to the several articles by Ramachandran, including: E. L. ALTSCHULER – S. B. WISDOM – L. STONE – C. FOSTER – D. GALASKO – D. M. E. LLEWELLYN - ET AL., «Rehabilitation of hemiparesis after stroke with a mirror», *The Lancet* 353/9169 (1999), in 10.1016/s0140-6736(99)00920-4 [2-8-2021], 2035–2036; V. RAMACHANDRAN – D. ROGERS-RAMACHANDRAN – M. STEWART, «Perceptual correlates of massive cortical reorganization», *Science* 258/5085 (1992), in 10.1126/science.1439826 [2-8-2021], 1159–1160. Likewise, studies have shown that medications such as NMDA antagonists and GABA agonists can have significant analgesic effects. See H. FLOR, «Phantom-limb pain: characteristics, causes, and treatment», *The Lancet Neurology* 1/3 (2002), in 10.1016/s1474-4422(02)00074-1 [16-7-2021], 182–189.

subjects who had none. It happens that the imaginary arm is enormous after the operation, but that it subsequently shrinks and is absorbed into the stump 'as the patient consents to accept his mutilation'"[515]. Yet, the explanation cannot be purely psychological, given the aforementioned biological considerations.

In short, Merleau-Ponty summarizes the findings in this way:

> A physiological explanation would account for anosognosia and the phantom limb as the straightforward suppression or equally straightforward persistence of 'interoceptive' stimulations. According to this hypothesis, anosognosia is the absence of a fragment of representation which ought to be given, since the corresponding limb is there; the phantom limb is the presence of part of the representation of the body which should not be given, since the corresponding limb is not there. If one now gives a psychological account of the phenomena, the phantom limb becomes a memory, a positive judgement or a perception, while anosognosia becomes a bit of forgetfulness, a negative judgement or a failure to perceive. In the first case the phantom limb is the actual presence of a representation, anosognosia the actual absence of a representation. In the second case the phantom limb is the representation of an actual presence, whereas anosognosia is the representation of an actual absence. In both cases we are imprisoned in the categories of the objective world, in which there is no middle term between presence and absence[516].

If neither physiology nor psychology can explain the causes of phantom limbs and anosognosia, where can the answer be found? Merleau-Ponty finds the solution in "the perspective of being-in-the-world". He notes:

> This phenomenon, distorted equally by physiological and psychological explanations, is, however, understood in the perspective of being-in-the-world. What it is in us which refuses mutilation and disablement is an *I* committed to a certain physical and inter-human world, who continues to tend towards his world despite handicaps and amputations and who, to this extent, does not recognize them *de jure*. The refusal of the deficiency is only the obverse of our inherence in a world, the implicit negation of what runs counter to the natural momentum which throws us into our tasks, our cares, our situation, our familiar horizons. To have a phantom arm is to remain open to all the actions of which the arm alone is capable; it is to retain the practical field which one enjoyed before mutilation. The body is the vehicle of being in the world, and having a body is, for a living creature, to be intervolved in a definite environment, to identify oneself with certain projects and be continually committed to them[517].

Nevertheless, Merleau-Ponty continues, because man lives in the world, the world reveals to him his loss of a limb. He cannot help but be called to objects he could

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[515] MERLEAU-PONTY, *Phenomenology of Perception*, 76.
[516] MERLEAU-PONTY, *Phenomenology of Perception*, 80.
[517] MERLEAU-PONTY, *Phenomenology of Perception*, 81-82.

previously use with ease but cannot anymore. As a consequence, the French phenomenologist relates phantom limbs to the psychoanalytic notion of repression: this occurs when "the subject's entering upon a certain course of action—a love affair, a career, a piece of work—in his encountering on this course some barrier, and, since he has the strength neither to surmount the obstacle nor to abandon the enterprise, he remains imprisoned in the attempt and uses up his strength indefinitely renewing it in spirit"[518]. Hence, it seems Merleau-Ponty would admit using psychotherapy in order to overcome the existence of the phantom limb and to effectively unify the physical body with the bodily schema. However, the point is clear: the physical body and the bodily schema can disagree.

Pathological development and modification of the body schema according to current research

What are we to make of Merleau-Ponty's assertions in light of current research? Not only have contemporary studies examined the phenomenon of phantom limbs in more depth than was done during the life of the French phenomenologist, but they have also uncovered other examples of disordered perception that seems to relate to the body schema. Let us begin by considering research regarding phantom limbs, and then expand our considerations to other disorders.

Contemporary research into phantom limbs has affirmed the essential thesis of Merleau-Ponty, namely, that the cause of the phenomenon is neither entirely biological nor entirely psychological. As regards the biological aspect, studies on phantom limbs have convincingly shown that neural plasticity is at play in subjects who have lost their limbs. This can be seen in how the patients feel odd combinations of sensations. For instance, when water is trickled down the face of patients with phantom limbs, they will report feeling the water on their face as well as on their phantom arm[519].

[518] MERLEAU-PONTY, *Phenomenology of Perception*, 83. Just prior to this, the author notes "In that way the phenomenon of the phantom limb is absorbed into that of repression, which we shall find throwing some light on it" (82-83).

[519] See V. S. RAMACHANDRAN – S. BLAKESLEE, *Phantoms in the Brain*, William Morrow and Company, New York 1998, 34 and 50: "To investigate this, I placed a drop of warm water

Neurophysiologically, the explanation seems straight-forward: the neural pathways in the brain for the sensations in the arm and the face are adjacent, and hence as the brain adjusts to the missing limb, the pathways come to cross. This also explains why mirror therapy seems to help resolve the phantom limb: the mirror image "tricks" the brain into thinking that the phantom limb is in fact present, and hence can be stretched, itched, or moved[520].

Yet, on the same token, cases have been reported that seem to defy this explanation: V. Ramachandran recounts meeting Mirabelle Kumar who was born without arms. When questioned whether she had phantom limbs, she remarked: "'Yes. Absolutely. I've never had arms. All I've ever had are these.' Deftly, using her chin to help her in a practiced move, she took off her prosthetic arms, clattered them onto my desk and held up her stumps. 'And yet I've always experienced the most vivid phantom limbs, from as far back in my childhood as I can remember'"[521]. However, perhaps more intriguing still is that Mirabelle's phantom limbs were, in her own words, "shorter than they should be…. My phantom fingers should fit into the artificial fingers, like a glove, but my arm is about six inches too short"[522]. Likewise, Mirabelle reported that when she walked, her phantom limbs did not swing, like normal arms, but rather remained "frozen on the side" of her body; however, when she talked, she reported "My phantoms gesticulate. In fact, they're moving now as I speak"[523]. Indeed, Mirabelle, as well as other adults who have lost limbs, can "generate voluntary

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on Tom's face. He felt it there immediately but also said that his phantom hand felt distinctly warm. Once, when the water accidentally trickled down his face, he exclaimed with considerable surprise that he could actually feel the warm water trickling down the length of his phantom arm" (34).

[520] Mirror therapy was proposed by V. S. Ramachandran, who developed and refined the technique, resulting, in his words, in "probably the first example in medical history of a successful 'amputation' of a phantom limb!" (49). See V. S. RAMACHANDRAN – S. BLAKESLEE, *Phantoms in the Brain*, 21-62, for the entire development. For more recent applications, see S. IMAIZUMI – T. ASAI – S. KOYAMA, «Agency over Phantom Limb Enhanced by Short-Term Mirror Therapy», *Front. Hum. Neurosci.* 11 (2017), in 10.3389/fnhum.2017.00483 [19-7-2021].

[521] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 40-41.

[522] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 41.

[523] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 41.

movements in her phantom arms… Most of the patients can 'reach out' and 'grab' objects, point, wave good-bye, shake hands, or perform elaborate skilled maneuver with the phantom. They know it sounds crazy since they realize the arm is gone, but to them these sensory experiences are very real"[524].

Why would someone who never had arms experience phantom limbs, and why would these limbs be shorter than normal? Ramachandran's conclusion, based on his experiences with Mirabelle and others like her, is that "each of us has an internally hard-wired image of the body and limbs at birth – an image that can survive indefinitely, even in the face of contradictory information from the senses"[525]. Likewise, he attributes Mirabelle's phantom movements to the lack of dependence on sensory feedback. Adults who have lost limbs in adulthood have "had a lifetime of visual and kinesthetic feedback, a process that leads the brain to expect such feedback even after amputation. The brain is 'disappointed' if the expectation is not fulfilled – leading eventually to a loss of voluntary movements or even a complete loss of the phantom itself".[526] However, in Mirabelle's brain "the sensory areas … have never received such feedback. Consequently, there is no learned dependence on sensory feedback, and that lack might explain why the sensation of movements had persisted, unchanged, for twenty-five years"[527].

While research continues, it could nevertheless be said that not only is there a biological or neurological component to phantom limbs, but also a learned component which could be considered psychological. Merleau-Ponty's understanding that phantom limbs should be considered from the perspective of being-in-the-world is essentially still valid: it is not simply the biological component that matters, nor is the phantom exclusively a psychological phenomenon. It is a mixture of both, namely, of a body that is in the world in a certain way and under certain conditions. It should be noted, however, that while Merleau-Ponty posited repression of the lost limb and of the

[524] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 42.
[525] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 42.
[526] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 57.
[527] RAMACHANDRAN – BLAKESLEE, *Phantoms in the Brain*, 57.

lost possibilities for engaging the world as the foundation of the phantom limb, it would be difficult to see how someone like Mirabelle, who is very much aware of her phantom limb and never interacted with the world with real ones, could be repressing the loss of her arms.

Is Fabro's assertion that Merleau-Ponty's being-in-the-world is explained by Aquinas' cogitative power valid for phantom limbs? On the one hand, Aquinas would acknowledge that illnesses can affect the sense organ which has problems: Thomas says as much in the *Commentary on the Metaphysics*. Discussing errors in perception, and from whence they arise, Aquinas argues that such errors can arise from the imagination, but also from the injury to the sense organ itself:

> The same thing is also true if someone asks *whether things are such as they appear to those who are healthy or to those who are ailing*, that is, to those who are ill. For healthy people have sensory organs which are well disposed, and therefore the forms of sensible things are received in them just as they are; and thus the judgment which healthy people make about sensible objects is true. But the organs of sick people are not properly disposed, and therefore they are not changed as they should be by sensible objects. Hence their judgment about such objects is not a true one. This is clear with regard to the sense of taste; for when the organ of taste in sick people has been rendered inoperative as a result of the humors being destroyed, things that have a good taste seem tasteless to them[528].

Much like how a person with a cold does not taste things rightly, or the one with an eye infection does not see rightly, we could say that one with a phantom limb does not sense rightly.

Setting aside Aquinas' dubious biology of humors and their disposition, the essential point is that illnesses or lesions of the sense organ affect what is sensed: the judgment regarding sensibles of sick people is erroneous. In the case of phantom limbs, the injury or the maladaptation that is possible on account of the brain's plasticity could be considered as an injury to the sense organ, since it is precisely this confusion and fusion of nervous pathways that results in, for instance, "feeling" water running down the phantom limb. At the same time, when a patient contends their arms move, point,

[528] *Commentary on Aristotle's Metaphysics*, bk. 4, lect. 14, n. 696. Italics show the original text of Aristotle upon which Aquinas is commenting.

and the like, it would seem to be an overflowing from the imagination which, to varying degrees, is affirmed or rejected by the cogitative power as corresponding or not with reality.

Phantom limbs are perhaps the most well-known and best-studied of an increasing number of body-related perception disorders. Consider the cases of somatoparaphrenia and xenomelia (also called body integrity identity disorder, and formerly apotemnophilia). The former usually produces "a delusion of disownership of left-sided body parts", that is, a patient refuses to accept that their left leg or arm is in fact theirs; in the latter, aptly considered as a syndrome of "'negative' phantom limbs", a patient maintains that "a seemingly healthy part of the body does not belong to them and that they would feel more complete without it"[529], often resulting in the desire to amputate said healthy limb. Similarly to phantom limbs, recent research has shown that somatoparaphrenia often follows ischemic or hemorrhagic strokes, and hence there is notable damage to the brain structure[530]. For many neuroscientists and

[529] Note that somatoparaphrenia differs from anosognosia in that the former is rejection of ownership, e.g., the patient will attempt to throw their left leg out of their bed, insisting it is not theirs. SACKS, *The Man Who Mistook*, Ch. 4, «The Man Who Fell out of Bed». In the latter, the patient refuses to use their left side because of some injury which they seem to refuse or acknowledge, although their refusal implicitly acknowledges this loss, as Merleau-Ponty rightly notes. For somatoparaphrenia, see G. VALLAR – R. RONCHI, «Somatoparaphrenia: a body delusion. A review of the neuropsychological literature», *Exp Brain Res* 192/3 (2009), in 10.1007/s00221-008-1562-y [20-7-2021], 533. For xenomelia, see M. R. LONGO, «Body Image: Neural Basis of 'Negative' Phantom Limbs», *Current Biology* 30/11 (2020), in 10.1016/j.cub.2020.04.006 [20-7-2021], R644.

[530] For instance, in M. GANDOLA – P. INVERNIZZI – A. SEDDA – E. R. FERRÈ – R. STERZI – M. SBERNA - ET AL., «An anatomical account of somatoparaphrenia», *Cortex* 48/9 (2012), in 10.1016/j.cortex.2011.06.012 [20-7-2021], 1165: "We found a lesion pattern involving a fronto-temporo-parietal network typically associated with spatial neglect, hemiplegia and anosognosia. Somatoparaphrenic patients showed an additional lesion pattern primarily involving white matter and subcortical grey structures (thalamus, basal ganglia and amygdala). Further cortical damage was present in the middle and inferior frontal gyrus, postcentral gyrus and hippocampus. We propose that somatoparaphrenia occurs providing that a distributed cortical lesion pattern is present together with a subcortical lesion load that prevents most sensory input from being processed in neocortical structures; involvement of deep cortical and subcortical grey structures of the temporal lobe may contribute to reduce the sense of familiarity experienced by somatoparaphrenic patients for their paralyzed limb". See also D. ROMANO – A. MARAVITA, «The dynamic nature of the sense of ownership after brain injury. Clues from asomatognosia and somatoparaphrenia», *Neuropsychologia* 132 (2019),

biologists, this destruction suffices for an explanation of the cause of the rejection of ownership of the limb.

The case of xenomelia presents a similarly, and perhaps even more daunting, challenge: why would a person desire to amputate a healthy limb? Again, many neuroscientists propose that there is a biological basis for said desire rooted in the neuroanatomy of the brain; in particular, there is reason to believe that the location of the abnormalities also accounts for the sexual connotations of this syndrome, one of its distinctive features[531]. Indeed, it is in the sexual component that researcher Helena De Preester finds a possible Merleau-Pontian explanation of xenomelia[532]. Such an explanation seems to be in keeping with Merleau-Ponty's thought. In his lectures *On Child Psychology and Pedagogy*, the French phenomenologist remarks that "sexuality

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in 10.1016/j.neuropsychologia.2019.107119 [20-7-2021], 107119, 1-11, who note that almost all patients with somatoparaphrenia (97.1 %) had problems with proprioception, a point we will return to later. See also F. PERREN – L. HEYDRICH – O. BLANKE – T. LANDIS, «"Crossed" somatoparaphrenia: an unusual new case and a review of the literature», *Exp Brain Res* 233/1 (2015), in 10.1007/s00221-014-4101-z [20-7-2021], 175–179.

[531] L. M. HILTI – J. HÄNGGI – D. A. VITACCO – B. KRAEMER – A. PALLA – R. LUECHINGER - ET AL., «The desire for healthy limb amputation: structural brain correlates and clinical features of xenomelia», 136/1 (2013), in 10.1093/brain/aws316 [20-7-2021], 318–329: "In the right hemisphere, participants with xenomelia showed reduced cortical thickness in the superior parietal lobule and reduced cortical surface area in the primary and secondary somatosensory cortices, in the inferior parietal lobule, as well as in the anterior insular cortex. A cluster of increased thickness was located in the central sulcus. In the left hemisphere, affected individuals evinced a larger cortical surface area in the inferior parietal lobule and secondary somatosensory cortex. Although of modest size, these structural correlates of xenomelia appear meaningful when discussed against the background of some key clinical features of the disorder. Thus, the predominantly right-sided cortical abnormalities are in line with a strong bias for left-sided limbs as the target of the amputation desire, evident both in our sample and in previously described populations with xenomelia. We also propose that the higher incidence of lower compared with upper limbs (~ 80% according to previous investigations) may explain the erotic connotations typically associated with xenomelia, also in the present sample. These may have their roots in the proximity of primary somatosensory cortex for leg representation, whose surface area was reduced in the participants with xenomelia, with that of the genitals. Alternatively, the spatial adjacency of secondary somatosensory cortex for leg representation and the anterior insula, the latter known to mediate sexual arousal beyond that induced by direct tactile stimulation of the genital area, might play a role" (318).

[532] H. DE PREESTER, «Merleau-Ponty's sexual schema and the sexual component of body integrity identity disorder», *Med Health Care and Philos* 16/2 (2013), in 10.1007/s11019-011-9367-3 [20-7-2021], 171–184.

is important in that it is the mirror of our relationship with the body. Therefore, we see that sexuality intervenes as a constituent of corporality; moreover, behavior can only be explained by corporality"[533].

Again, a Merleau-Pontian view of these and various other challenges regarding bodily perception, such as gender dysmorphia, would likely take the perspective of being-in-the-body, noting that neither biological nor psychological factors can exclusively explain the phenomenon. Rather, the effect results from a combination of factors. Aquinas, in his manner, would agree: there is an influence of organs that have been injured, the imagination, as well as the cogitative power. In a particular way, complicated challenges facing bodily perception like that of gender dysmorphia or body dysmorphic disorder are also open to influence from social pressures. The Cass Review, released in April 2024, acknowledges the impact of multiple factors on gender identity, while avoiding a declaration of particular importance of each: these elements include cultural and religious factors, as well as social and online stressors[534]. Many such factors would be incorporated by means of the cogitative power as it forms the *experimentum* after repeated experiences, for instance, of being mocked for physical defects or differences, which would lead to the cogitative's appraisal of certain features as negative or positive.

These various delusional misidentification disorders lead us to consider yet another mental illness: schizophrenia. The literature on schizophrenia is vast, research increasingly uncovers new aspects of the disease, the diagnostic criteria has been subject to change, and even the symptoms of an individual schizophrenic are highly variable[535]. Hence, here it will not be possible to examine in detail the possible

[533] MERLEAU-PONTY, *Child psychology and pedagogy*, 74.

[534] «Final Report – Cass Review», in https://cass.independent-review.uk/home/publications/final-report/ [24-11-2024]. See, in particular, 121-122.

[535] The definition of schizophrenia and the diagnostic criteria have been revised through the different versions of the DSM, and at one point differing diagnostic criteria were applied in the US and in Europe (i.e., DSM criteria versus ICD). See M. T. BHATI, «Defining Psychosis: The Evolution of DSM-5 Schizophrenia Spectrum Disorders», *Curr Psychiatry Rep* 15/11 (2013), in 10.1007/s11920-013-0409-9 [1-2-2020], for an examination of the evolution of the definition and diagnostic criteria. For an overview of the differences between the DSM-4 and

connections between this disease and the cogitative power; we will only be able to indicate, in general terms, some aspects of this infirmity that bear consideration.

While both the ICD-11 and DSM-5 give a similar description of schizophrenia, in particular the DSM-5 indicates three salient features[536]. For a diagnosis of schizophrenia, one or more of the following three symptoms must be present: delusions, hallucinations, and/or disorganized speech[537]. Delusions are defined as

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the DSM-5 vis-à-vis the diagnostic criteria, see R. TANDON – W. GAEBEL – D. M. BARCH – J. BUSTILLO – R. E. GUR – S. HECKERS - ET AL., «Definition and description of schizophrenia in the DSM-5», *Schizophrenia Research* 150/1 (2013), in 10.1016/j.schres.2013.05.028 [1-2-2020], 3–10. D. W. BLACK, *DSM-5 Guidebook*, American Psychiatric Pub 2014, 63, indicates that following the implementation of the DSM-5, "[c]linicians will no longer record schizophrenia subtypes. Although the paranoid, disorganized, catatonic, undifferentiated, and residual subtypes have a lengthy history that predates DSM-I (McGlashan and Fenton 1994), there was little evidence to support either their clinical utility or their predictive validity (Helmes and Landmark 2003). Because the course of schizophrenia is highly variable, the subtypes had little stability, so that at various stages of illness it was not unusual for a person's symptoms to meet criteria for different subtypes. For example, a person's symptoms may have met the criteria for disorganized subtype early in the illness and then met criteria for the paranoid subtype and, eventually, the residual subtype later in the course of the illness".

[536] WORLD HEALTH ORGANIZATION, «ICD-11 For Mortality And Morbidity Statistics», 2021, *World Health Organization, Classification of Diseases (ICD)*, in https://icd.who.int/browse11/l-m/en#/http%3a%2f%2fid.who.int%2ficd%2fentity%2f1683919430 [28-7-2021]: the description given is as follows: "Schizophrenia is characterised by disturbances in multiple mental modalities, including thinking (e.g., delusions, disorganisation in the form of thought), perception (e.g., hallucinations), self-experience (e.g., the experience that one's feelings, impulses, thoughts, or behaviour are under the control of an external force), cognition (e.g., impaired attention, verbal memory, and social cognition), volition (e.g., loss of motivation), affect (e.g., blunted emotional expression), and behaviour (e.g., behaviour that appears bizarre or purposeless, unpredictable or inappropriate emotional responses that interfere with the organisation of behaviour). Psychomotor disturbances, including catatonia, may be present. Persistent delusions, persistent hallucinations, thought disorder, and experiences of influence, passivity, or control are considered core symptoms. Symptoms must have persisted for at least one month in order for a diagnosis of schizophrenia to be assigned. The symptoms are not a manifestation of another health condition (e.g., a brain tumour) and are not due to the effect of a substance or medication on the central nervous system (e.g., corticosteroids), including withdrawal (e.g., alcohol withdrawal)".

[537] The technical criteria are as follows: "Two (or more) of the following, each present for a significant portion of time during a 1-month period (or less if successfully treated). *At least one of these must be (1), (2), or (3):*

1. *Delusions.*
2. *Hallucinations.*
3. *Disorganized speech (e.g., frequent derailment or incoherence).*

"fixed beliefs that are not amenable to change in light of conflicting evidence," and are further specified as "*bizarre* if they are clearly implausible and not understandable to same-culture peers and do not derive from ordinary life experiences"[538]. Hallucinations are "perception-like experiences that occur without an external stimulus. They are vivid and clear, with the full force and impact of normal perceptions, and not under voluntary control"[539]. In the case of schizophrenia, these hallucinations are generally auditory in the form of voices. The third symptom, disorganized speech, is taken to be representative of disorganized thinking, and "must be severe enough to substantially impair effective communication"[540].

The first two symptoms clearly seem to pertain, at least partially, to functions attributed to the cogitative power. Considered phenomenologically, the first symptom, delusions, consist in a misattribution of meaning to what is perceived; this is what psychologists have indicated since the early days of research into the illness. For instance, the pioneering Kurt Schneider recounts the following account given by a schizophrenic, emphasizing the erroneous interpretation of the event:

> A dog lay in wait for me as he sat on the steps of a Catholic convent. He got up on his hindlegs and looked at me seriously. He then saluted with his front paw as I approached him. Another man was a little way in front of me. I caught up to him hurriedly and asked if the dog had saluted him too. An astonished 'no' told me I had to deal *with a revelation addressed to me*[541].

Fabro cites this text from Schneider in *FP*, and notes the psychologist's emphasis on "the character of a completely unmotivated personal reference". More

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4. Grossly disorganized or catatonic behavior.
5. Negative symptoms (i.e., diminished emotional expression or avolition)."

Emphasis added. AMERICAN PSYCHIATRIC ASSOCIATION, *Diagnostic and Statistical Manual of Mental Disorders (DSM-5®)*, American Psychiatric Pub 2013, 99

[538] AMERICAN PSYCHIATRIC ASSOCIATION, *DSM-5*, 87. The following examples are given: "An example of a bizarre delusion is the belief that an outside force has removed his or her internal organs and replaced them with someone else's organs without leaving any wounds or scars. An example of a nonbizarre delusion is the belief that one is under surveillance by the police, despite a lack of convincing evidence".

[539] AMERICAN PSYCHIATRIC ASSOCIATION, *DSM-5*, 87.

[540] AMERICAN PSYCHIATRIC ASSOCIATION, *DSM-5*, 88.

[541] FABRO, *FP*, 261; Fabro notes the account is taken from Schneider's article «Delirio» in *Enc. Medica Italiana*.

recent scholars have affirmed the same curious interpretation of events. For instance, as Janusz Wrobel explains in his study of schizophrenia and language use, regarding a particular case study:

> A poster also had a special meaning for him because . . . it informed the police that the schizophrenic had a knife at home. An accidental conversation in a street-car denominated a provocation; pieces of wood and paper found in books proved that he was under continual investigation; every article he read in a newspaper and any radio program he heard also referred to him. Facts unnoticed by non-schizophrenics, who for example did not pay attention to a discarded ticket on the floor of a street-car, grow in essential dimensions for the schizophrenic. Accidental events are received as a message, a piece of intelligence first prepared and then directed strictly to the interested person[542].

Commenting on the example given by Schneider, Fabro notes that in such "delusional perceptions" it is not the sphere of perception itself that is affected. On the contrary, the entire act of perception seems normal enough; the problem is rather to be found in "the interpretation, the meaning of the whole, or the global appropriation of the perception by the subject himself in his personality. [It is this] that is at stake in the delusional process as its starting point"[543]. Concrete objects, such as posters, pieces of wood and paper, and discarded tickets, take on an exaggerated meaning, and, as was seen in the previous chapter, the grasping of the meaning of objects pertains to the cogitative power[544].

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[542] J. WRÓBEL, *Language and schizophrenia*, John Benjamins Publishing, Amsterdam 1990, 104.

[543] FABRO, *FP*, 263: "È l'interpretazione, il significato del tutto, ovvero l'appropriazione globale della percezione da parte del soggetto stesso nella sua personalità ch'è in gioco nel processo delirante come suo punto di partenza".

[544] For instance, FABRO, *PP*, 159: "La «intentio» in senso gnoseologico rigoroso sta per il *significato* concreto che hanno gli oggetti per l'animale e per l'uomo, ed allora si riferisce strettamente ai soli contenuti della *cogitativa* o *distinctiva* (ed estimativa) e della memoria, cioè del quarto e quinto ordine. Alla cogitativa appartiene pertanto un proprio oggetto, che va distinto tanto da quello dei sensi inferiori, come da quello dell'intelletto. Evidentemente il contenuto originale che ha l'«*intentio*» per rispetto alla «forma», suppone una nuova organizzazione che l'elaborazione interiore impone ai dati «formali». L'organizzazione di cui si parla non consiste nell'ordinamento spazio-temporale soltanto, ma nella collocazione di un fatto, di un oggetto, di una persona nell'ambiente proprio che ad essi compete di altri fatti, oggetti, persone..., dalla quale collocazione essi traggono l'interesse pratico che *hic et nunc* hanno per il soggetto il quale fa questo esame comparativo o «collatio». È questa la organizzazione secondaria". Likewise, "S. Tommaso attribuisce perciò alla cogitativa le

The third symptom, disorganized speech, serves as a point of contact between Fabro and Merleau-Ponty's insights. Some scholars have noted the study of schizophrenia could be aided by the insights of phenomenology, including those of Merleau-Ponty, because such a perspective is able to integrate the patient's subjective experiences of being-in-the-world and emphasizes the importance of language in understanding the world[545].

Schizophrenia appears to be a uniquely human disease: "It [schizophrenia] seems it is a characteristic of human populations. It is a disease (perhaps the disease) of humanity"[546]. In other words, it is an illness which seems to have no analogous form in lower animals. Scientists have observed links between the genetic regions that distinguish humans from previous species, particularly those responsible for the development of the cerebellum, and those that bear an influence on the traits typical of schizophrenia[547]. Hence, some scientists have asked: "Is schizophrenia the price that *Homo sapiens* pays for language?"[548] In other words, did the evolutionary leaps that made language possible also open man up to the possibility of schizophrenia?

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seguenti funzioni: 1) Afferrare «in concreto» il significato delle cose" FABRO, «Cogitativa», in *Enciclopedia Cattolica*.

[545] For example, P. J. UHLHAAS – A. L. MISHARA, «Perceptual Anomalies in Schizophrenia: Integrating Phenomenology and Cognitive Neuroscience», *Schizophrenia Bulletin* 33/1 (2006), in 10.1093/schbul/sbl047 [27-7-2021], 142–156. Also, W. HINZEN, «The linguistics of schizophrenia: thought disturbance as language pathology across positive symptoms», *Front. Psychol.* (2015), in 10.3389/fpsyg.2015.00971 [27-7-2021], who mentions the importance of language apropos Merleau-Ponty.

[546] T. CROW, «The 'big bang' theory of the origin of psychosis and the faculty of language», *Schizophrenia Research* 102/1–3 (2008), in 10.1016/j.schres.2008.03.010 [1-2-2020], 33. Granted, there is some difficulty in drawing parallels between human and animal "mental" illness: human illnesses are often diagnosed through self-report, whereas as animal maladies must be diagnosed through observing behaviors.

[547] See the fascinating article K. XU – E. E. SCHADT – K. S. POLLARD – P. ROUSSOS – J. T. DUDLEY, «Genomic and Network Patterns of Schizophrenia Genetic Variation in Human Evolutionary Accelerated Regions», 32/5 (2015), in 10.1093/molbev/msv031 [1-2-2020], 1148–1160. An older but nonetheless pertinent study is the aforementioned CROW, «The 'big bang' theory».

[548] E.g. T. J. CROW, «Is schizophrenia the price that Homo sapiens pays for language?», *Schizophrenia Research* 28/2–3 (1997), in 10.1016/s0920-9964(97)00110-2 [31-1-2020], 127–141.

In his commentary on Aristotle's *Politics*, Aquinas affirms that animals do not have the power of speech: "For although some animals utter human speech, they do not speak in the strict sense, since they do not understand what they are saying. Rather, they utter such sounds as a result of training"[549]. While such a categorical position might be challenged today, especially if speech is taken in the broad sense to include use of signs, it seems clear that the use of signs by animals, particularly by primates, is limited in ways that human language is not[550].

Thus, a picture starts to emerge. It is impossible for the human intellect itself, as it is an immaterial faculty, to be subject to illness. It would seem, then, that the cogitative power, which is responsible for the formation of schema, the influence of culture, and particular judgments regarding the here and now, would certainly bear the brunt of the responsibility for the difficulties in language associated with schizophrenia. Indeed, research continues to delve more deeply in the various aspects of schizophrenic language[551]. Even now, several characteristics are of particular note: for instance, some studies have noted that schizophrenic gibberish, while incoherent and incomprehensible, nevertheless obeys the rules of phonotactics regarding stress and phonemic rules of the schizophrenic's native language[552]. Likewise, the well-

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[549] *Politics*, 17.

[550] See the excellent work by M. DONALD, *Origins of the Modern Mind*, Harvard University Press 1993, which discusses the use of signs by primates and many other related topics. In particular, Chapter 5, «Primate Culture: Episodic Cognition», 124-161. Some of the deficits include: no evidence of sentence construction, no awareness of word order rules, lack of syntax, lack of word strings beyond two or three signs, language acquisition is not a natural process (it requires extensive training); in short: "There is no point in belaboring the point: human linguistic superiority appears safe for the moment, apes and their trainers have been put in their place, and splitting hairs will not change things" (129).

[551] An interesting article in this regard is M. STEPHANE – M. KUSKOWSKI – J. GUNDEL, «Abnormal dynamics of language in schizophrenia», *Psychiatry Research* 216/3 (2014), in 10.1016/j.psychres.2014.02.027 [3-8-2021], 320–324.

[552] E. CHAIKA, «A linguist looks at "schizophrenic" language», *Brain and Language* 1/3 (1974), in 10.1016/0093-934x(74)90040-6 [3-8-2021], 257–276: "Items in phonetic transcription, enclosed in square brackets are gibberish. Except for these, the phonology of each utterance seems to be entirely normal. It strikes the listener as being in no way deviant. The gibberish, (1c), (5p), and (5q) is very significant. In each case, it is uttered as if it were a meaningful string. That is, there was no pause or stress before, after, or during these aberrations. Each was uttered in a normal fashion, and each conforms completely to the

known "world salads" of schizophrenic speech, for example, "The house burnt the cow horrendously always", are often defined as phrases "being made out of recognizable words that seem unrelated to each other". Nevertheless, research has also indicated that "linguistic analysis reveals that the structure of this supposed word salad is not aberrant"[553]. How is it possible that language can be structured, and yet utterly incoherent? Perhaps the reasoning is to be found in the development of the individual schema, some of which are damaged or mis-applied, while others remain more deeply rooted and continue to influence the use of language. How language develops, and in what particular way the cogitative power plays a role, will be considered in the following chapters, and it is here that an engagement between Merleau-Ponty, and in particular his insights regarding language usage, and Fabro might prove quite fruitful.

Conclusion

After having considered the methodology and key concepts of Merleau-Ponty's phenomenology, we examined whether there could be a fruitful dialogue between Aquinas and the French phenomenologist. After studying the theoretical context of Merleau-Pontian thought, we examined three different areas where the French thinker's insights could also help to clarify the role of the cogitative power and the *sensibile per accidens* of Aquinas. In particular, Merleau-Ponty's understanding of being-in-the-body can add to and clarify Aquinas' thoughts regarding illness, language, and how we perceive ourselves and our bodies.

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phonotactics of English. In fact, because they are so consistent with the stress and phonemic rules of English, on first hearing, one thinks the patient has actually made utterances of the language which one has failed to catch. In other words, these are not random sound productions. They are rule governed and produced according to the phonological rules of the patient's dialect. Their deviance is caused by their not being words now actually in use in the language" (261-262).

[553] CHAIKA, «A linguist looks», 266. Chaika's view has not been without its critics: e.g., see V. A. FROMKIN, «A linguist looks at "a linguist looks at 'schizophrenic language'"», *Brain and Language* 2 (1975), in 10.1016/s0093-934x(75)80087-3 [3-8-2021], 498–503. Nevertheless, Chaika's work remains influential, and Fromkin's critiques do not affect the truth of Chaika's observations (she opposes the general conclusions that Chaika reaches, especially given the limited number of patients studied).

Chapter 3

Affordances in J. J. Gibson's school of ecological psychology

As discussed earlier, some Thomists have seen a possible point of engagement with modern psychological research in the notion of affordances found in the school of ecological psychology. To examine whether this thesis is viable, it behooves us to first examine the foundations of ecological psychology, in particular its philosophical underpinnings, as well as the key concepts that emerge from it. With this framework, we will be in position to examine how the level of analysis found in Gibsonian ecological psychology can help to understand, fine-tune, or even modify Aquinas' doctrine on the nature and object of the cogitative power and, in particular, the object Scholastics identified as *sensibili per accidens* as Fabro understands it.

Methodological considerations

In accordance with our methodology, 1) the different criteria that each discipline uses to gather its *facts* must be specified; 2) the *theoretical context* that each discipline accepts in order to explain those facts must be laid out, and; 3) based on these criteria and on this context, the concepts to be used must be *clearly defined*, in order to avoid equivocation[554]. Once these concepts have been defined, it must then be determined if and how they can be subsequently *linked* or *related* to Aquinas' terminology and concepts.

[554] AGAZZI, «El desafío», 248-9.

J. J. Gibson's ecological psychology as experimental psychology

In the broadest terms, J. J. Gibson's ecological psychology is suited to our interdisciplinary study of perception since it is precisely a psychological approach to problems of perception[555], and the majority of Gibson's insights and assertions follow from experimental research[556]. In the introduction, it was argued that experimental psychology is both subjective and quantitative: subjective in that it is the subject who reports or simply reacts to what they experience, and quantitative in that the results obtained should be in some way measurable or quantifiable. Both criteria are met by ecological psychology as can be seen from some of the school's key research articles. For instance, in their 1987 article William Warren and Suzanne Whang presented subjects of differing heights with diverse sets of stairs, with each set having a different height of stairs, and asked the subjects if they felt they would be able to climb the stairs presented. After compiling the answers, the researchers found the perception of "ability to be climbed" is a ratio based on leg length; in other words, the subjects were perceiving, not simply the height of the stairs, but rather relational information[557]. Likewise, in their 1990 article Leonard Mark and his team modified subjects' heights by adding blocks to their shoes, and then asked them if they thought they would be able to sit in a particular chair or not. Mark discovered that if the subjects remained stationary, their appraisals were less accurate than if they were allowed to walk around

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[555] Cf. J. J. GIBSON, *The Ecological Approach to Visual Perception*, Psychology Press 2014, xiii.

[556] "There must have been 500 or more such projects [experiments regarding perception] in my years at Smith [College], and I am sure that they constitute my main backlog of psychological knowledge": J. J. GIBSON, "Autobiography" in E. JONES - R. JONES (edd.), *Reasons for Realism: Selected Essays of James J. Gibson*, Erlbaum, Hillsdale, NJ 1979: 11.

[557] W. H. WARREN – S. WHANG, «Visual guidance of walking through apertures: Body-scaled information for affordances.», *Journal of Experimental Psychology: Human Perception and Performance* 13/3 (1987), in 10.1037/0096-1523.13.3.371 [12-2-2023], 371–383. The experiments cited in this section are the ones emphasized by Heft in his 2010 lecture at Mary Immaculate College in Ireland. See PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action», 2013, *YouTube*, in https://web.archive.org/web/20230212105616/https://www.youtube.com/watch?v=k4fKBqu-Ris [12-2-2023].

the chair and observe it[558]. In this way, it was apparent to the researchers that movement affects and, in this case, improves perception. Lastly, the work of Dennis Proffit has shown that subjects will report perceiving distances as longer or angles (of hills) as steeper if they are weighted down with a backpack, tired, elderly, or physically unfit[559].

Hence, it is benign to assert that ecological psychology is a branch of experimental psychology, one that is subjective and quantitative and which gathers facts by means of experiments; therefore, it is suitable for insertion in our proposed methodology.

One last observation is in order, concerning the level of abstraction and of analysis. As will be examined later, Gibson ultimately insists that ecological psychology proceeds on the *functional* or *psychological* level of analysis. Such a level is a *macro-* or *molar* analysis, meaning the properties or functions considered emerge within the context of a whole system; these features will be overlooked if attention is focused on smaller parts. The molar level refers not only to the subject-environment relation, but also to the time frame in which behaviors are observed: not in nanoseconds or millions of years, but rather in a "scale of events … commensurate with the living activities of animals considered as whole organisms"[560]. By the whole organism, what Gibson has in mind is the whole body as well as its environment. What exactly ecological psychology observes and concludes will be seen later; for now, it is

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[558] L.S. MARK – J. A. BALLIETT – K. D. CRAVER – S. D. DOUGLAS – T. FOX, «What an Actor Must Do in Order to Perceive the Affordance for Sitting», *Ecological Psychology* 2/4 (1990), in 10.1207/s15326969eco0204_2 [12-2-2023], 325–366.

[559] D. R. PROFFITT – J. STEFANUCCI – T. BANTON – W. EPSTEIN, «The Role of Effort in Perceiving Distance», *Psychol Sci* 14/2 (2003), in 10.1111/1467-9280.t01-1-01427 [12-2-2023], 106–112; also M. BHALLA – D. R. PROFFITT, «Visual–motor recalibration in geographical slant perception.», *Journal of Experimental Psychology: Human Perception and Performance* 25/4 (1999), in 10.1037/0096-1523.25.4.1076 [12-2-2023], 1076–1096.

[560] H. HEFT, *Ecological psychology in context*, Psychology Press, Mahwah, N.J 2001, 111. The whole section, 109-114, is entitled "Animal-Environment Mutuality and Levels of Analysis". Likewise, During his lecture 2010 lecture at Mary Immaculate College in Ireland (PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action», 2013, *YouTube*, in https://web.archive.org/web/20230212105616/https://www.youtube.com/watch?v=k4fKBqu-Ris [12-2-2023]), Heft emphasizes that ecological psychology is at the psychological, and not molecular or material, level.

sufficient to mention these levels of abstraction and of analysis, so that the later discussion will be held on the proper ground.

As an empirical science, ecological psychology is what Maritain calls an "affirmative science" which engages in *abstractio totalis*, that is, the abstraction of the universal from the particular[561]. This is the lowest degree of abstraction, Maritain argues, and means that ecological psychology, together with the other affirmative sciences, "do not achieve the discovery of the natures seen by them"[562]. As he explains elsewhere, such affirmative sciences "bear on essences as *concealed*, which can never in themselves reveal the intelligible necessities immanent in their object…. They enable us to know 'causes' or reasons of being by their effects, not in themselves, but by the signs which are our substitutes for them"[563]. In this case, what are the signs ecological psychology studies, the signs that substitute for the causes? This remains to

[561] There is a great deal of literature surrounding Maritain's use of the term *abstractio totalis*. In J. MARITAIN, *Philosophy of Nature*, Philosophical Library, New York 1951, Maritain claims that *abstractio totalis* is "abstraction of the whole with respect to the parts" whereas "*abstractio formalis*, [is] abstraction of the form or formal type from matter" (15). However, as, for instance, Edward Simmons notes, "This distinction is simply not the distinction that St. Thomas has in mind when he distinguishes between *abstractio totius*, as belonging to natural science, and *abstractio formae*, as belonging to mathematics" (E. D. SIMMONS, «The Thomistic Doctrine of the Three Degrees of Formal Abstraction», *The Thomist* 22/1 (1959), in 10.1353/tho.1959.0002 [14-4-2023]: 40). See also C. J. KELLY, «Abstraction and Existence», *Laval théologique et philosophique* 21/1 (1965), in 10.7202/1020068ar [14-4-2023]: 17-42, and in particular L. FERRARI, «"Abstractio Totius" and "Abstractio Totalis"», *The Thomist* 24/1 (1961), in 10.1353/tho.1961.0003 [14-4-2023], 72–89.

[562] MARITAIN, *Degrees of Knowledge*, 47-48.

[563] MARITAIN, *Degrees of Knowledge*, 42. These sciences of affirmation, continues Maritain, "enable us to know 'causes' or reasons of being by their effects, not in themselves, but by the signs which are our substitutes for them. We know that heat expands metals, that ruminants have cloven hoofs, and so blindly lay hold of some necessity whose reason we do not see—a well-founded experimental *constant* being the sign of some necessity, and in itself the sign of some essential connection…. The other sciences, the sciences of affirmation, tend towards such truths, but do not achieve rising above existence in time, precisely because they do not attain to intelligible natures except in the signs and substitutes which constitute their field of experience…. These latter [affirmative sciences] have assuredly a certain explicative value, without which they would not be sciences, but which consists in indicating the necessities of things by way of sensible experiments, not by assigning their intelligible reasons" (42-43).

be seen, but, as a preliminary step, the theoretical context of ecological psychology must be examined and established.

Theoretical context of ecological psychology

Next, we must consider the *theoretical context* of ecological psychology, that is, the foundations of ecological psychology in the form of the underlying philosophical and psychological principles, so this background can be considered and borne in mind for the integration we propose, namely, into a Thomistic *Weltanschauung*.

The various scientific, psychological, and philosophical foundations of Gibson's ecological psychology have been examined at length in Thomas Lombardo's *The Reciprocity of Perceiver and Environment: The Evolution of James J. Gibson's Ecological Psychology*[564], as well as Harry Heft's *Ecological Psychology in Context*, which offers an examination of the "central theoretical and philosophical commitments of Gibson's perspective [which] are articulated through an analysis of its immediate historical roots"[565]. Rather than re-examine in detail the various theoretical underpinnings of ecological psychology, we will simply highlight the most relevant to our study, providing a summary explanation. The use of secondary sources, as opposed to exclusively referencing primary sources, is required because, notwithstanding

[564] E. J. GIBSON, *Perceiving the Affordances*, Lawrence Erlbaum Associates, Mahwah, NJ 2008, 99. While this book is ostensibly about the life of Eleanor Gibson, it sheds a great deal of light on the life of her husband James. See T. J. LOMBARDO, *The Reciprocity of Perceiver and Environment*, Routledge 2017. The text is an updated version of Lombardo's doctoral dissertation. While important for its in-depth examination of the historical foundations of ecological psychology, the focus is very broad, starting with the pre-Socratics, Plato, and Aristotle, and running through an examination up to Gibson's days. The book by E. REED, *James J. Gibson and the psychology of perception*, New Haven 1988, is much more a standard biography than an intellectual one. Likewise, the article L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», *Front. Psychol.* 9 (2018), in 10.3389/fpsyg.2018.02228 [29-9-2021]: 1-15, provides a summary of the points at hand, but the generalizations and citations seem haphazard and often taken out of context. In short, all three secondary sources agree on the importance of the influence of these various schools on the formation of ecological psychology, but Heft's work is, in my opinion, the most focused and concise.

[565] HEFT, *Ecological psychology in context*, XV.

Gibson's own affirmations, the connections and references are not immediately apparent and are often and easily overlooked[566].

Pragmatism and radical empiricism

One of the greatest influences on Gibson's thought, in particular on his pragmatism and radical empiricism, was Edwin Bissell (E. B.) Holt, who himself had been a student of William James, author of *Essays in Radical Empiricism*, among other works[567]. Although radical empiricism is independent of pragmatism, it has some affinities with it. Indeed, although James writes that "There is no logical connexion [*sic*] between pragmatism, as I understand it, and a doctrine which I have recently set forth as 'radical empiricism,'" nevertheless he states elsewhere "I am interested in another doctrine in philosophy to which I give the name of radical empiricism, and it seems to me that *the establishment of the pragmatist theory of truth is a step of first-rate importance in making radical empiricism prevail*"[568]. The reason for this affinity is found in the emphasis pragmatism lays on practical ends and experience. Philosophical questions are to be resolved according to the "principle of pragmatism": "by tracing [the] respective practical consequences" of the alternatives. "If no practical

[566] Heft notes that one of the motivations for writing his book (presumably *Ecological psychology in context*) was precisely to clarify these often-overlooked philosophical underpinnings. In the 2010 lecture [5:41], Heft remarks: "I want to root this theoretical position [ecological psychology] in a philosophical foundation. This has been a problem. The point, one of the major goals of my book is to try to do just that. Many people read Gibson and think, 'Well, these are interesting ideas, but they don't fit into anything I've ever seen before. Where did they come from?' So, what I want to do is in a very brief period of time try to then imbed ecological psychology onto a philosophical foundation and that will be William James' radical empiricism". PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».

[567] E.g., J. J. GIBSON, «Autobiography» in E. JONES - R. JONES (edd.), *Reasons for Realism: Selected Essays of James J. Gibson*: "I was a radical empiricist, like Holt" (10), and "I occasionally ventured to argue with [Koffka], for my bent was skeptical and pragmatic" (10). Holt taught at Princeton at the same time Gibson was there.

[568] W. JAMES, *Pragmatism*, Hackett Publishing Company Incorporated, Indianapolis 1981, 3; W. JAMES, *The Meaning of truth*, Harvard University Press, Cambridge, Mass 1975, 6. Emphasis added. These citations are offered by both HEFT, *Ecological psychology*, 42, and Ralph B. Perry in his editor's preface to W. JAMES, *Essays in Radical Empiricism*, ed. R. B. PERRY, Longman, Green, and Co., London 1912, iv-v.

difference whatever can be traced, then the alternatives mean practically the same thing, and all dispute is idle"[569].

The pragmatic notion of truth also flows from these practical consequences:

> Truth, for [the pragmatist], becomes a class-name for all sort of definitive working-values in experience…. The truth is *one species of good*, and not, as is usually supposed, a category distinct from good, and co-ordinate with it. *The true is the name of whatever proves itself to be good in the way of belief, and good, too, for definite, assignable reasons*"[570].

As Heft notes, for James "validity and meaning are assessed entirely within experience"[571]. This notion of truth and the importance of experience square up neatly with radical empiricism, an overlooked but immensely influential school of thought for Gibson: Heft writes that "radical empiricism stands at the heart of Gibson's ecological program, and it can usefully be employed as the conceptual centerpiece for ecological psychology"[572]. Heft summarizes James' radically empiricist position:

> Like the empiricists, [James] adopted the perspective that knowledge is derived from sensory experience; but he went further than traditional empiricists by adopting a radical stance toward this assumption. The origins of all knowledge—entities and their relations—are to be found in immediate experience. James did not begin with perceiver and object as discontinuous entities, but with undifferentiated experience; and relations, including the relation between knower and known, are part of immediate experience....

In James' own words:

> My thesis is that if we start with the supposition that there is only one primal stuff or material in the world, a stuff of which everything is composed, and if we call that stuff 'pure experience,' then knowing can easily be explained as a particular sort of relation towards one another into which portions of pure experience may enter. The relation itself is a part of pure experience; one of its 'terms' becomes the subject or bearer of the knowledge, the knower, the other becomes the object known[573].

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[569] JAMES, *Pragmatism*, 26.

[570] JAMES, *Pragmatism*, 34, 37. Emphasis in original.

[571] HEFT, *Ecological psychology*, 43.

[572] HEFT, *Ecological psychology*, xvi. LOMBARDO, *The Reciprocity of Perceiver and Environment*, 124, notes that empiricism was the dominant view in 20th century American psychology, and as early as 1930 Gibson subscribed to the traditional empiricist viewpoint.

[573] JAMES, *Essays in Radical Empiricism*, 4. After presenting this text [1:33], Heft notes the vagueness of James' terminology, and then describes this pure experience as a mathematical limit, "unqualified actuality, what's there; it has a certain immediacy, and we act on it." PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».

In radical empiricism, then, the subject-object distinction is secondary and derived, since in pure experience we simply have "stuff" entering into a relation with other "stuff", a union of experiences[574]. "With 'pure experience' as a metaphysical starting point", James can reject "mind-matter dualism"[575]. Indeed, historically this was James' concern: to overcome Locke and Hume and their associationism (wherein the mind must link diverse sensations together to form wholes), as well as reject any form of mentalism, that is, the notion that "ideas [as] separate subjective entities in the mind that come and go"[576]. Rather, for James knowing is *selectivity*: through knowing processes, structure is selected out of, or differentiated from, immediate experience[577]. This is how the subject-object dichotomy arises: it is differentiated at a second stage, since what is initially given is a union of pure experience. From this selective process arise both *precepts* and *concepts*: *precept* refers to the "singulars that change incessantly and never return exactly as they were before", since, in the constant ebb and flow of experience, the "big, blooming, buzzing confusion" of life, these singulars come and go in a perpetual flux[578]. Precepts, then, are the "object" of perception insofar

[574] For a complete discussion, see D. C. LAMBERTH, *William James and the Metaphysics of Experience*, Cambridge University Press, Cambridge, U.K 1999. Regarding this "stuff" Lamberth notes that "one of the more difficult and pressing problems for understanding James's radically empiricist *Weltanschauung* as a whole concerns the terms 'experience' and 'experienced' themselves. What he means by 'experienced' in his statement above, as well as by 'experience' in his thesis of pure experience, has been a subject of great debate among his interpreters, with no real consensus emerging" (16). Adding to the difficulty is that "later in the very same text [James] takes back this implication, stating that pure experience is not, in fact, a single stuff at all: 'I have now to say,' he writes, 'that there is no *general* stuff of which experience at large is made. There are as many stuffs as there are 'natures' in the things experienced.' 'Pure experience' is not a general substance or substratum, analogous (in having various definite properties) to matter or mind in other philosophies. On the contrary, it is in many respects simply a conceptual placeholder, denoting certain capacities and limitations (such as those seen in the methodological and factual theses), but unspecified with respect to many of the determinations philosophers generally delineate in such a basic metaphysical principle, whether the basic substance be mind (spirit) or matter" (24).

[575] HEFT, *Ecological psychology*, 46-47.

[576] Heft at [1:29.30] PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».

[577] HEFT, *Ecological psychology*, 36-37.

[578] Cited in HEFT, *Ecological psychology*, 39, as from James' *Essays in Radical Empiricism* and *Memories and Studies*, respectively, but it is unclear if these are the proper citations.

as they are separated or differentiated out of pure experience. From these precepts, another step of abstraction can take place, one which yields a *concept*. "Abstracting from the immediate flow of experience makes it possible for the knower to isolate, and then to classify or otherwise manipulate, these extracted 'moments'"[579]. Since concepts are abstractions, they must continually be referred to and checked against precepts and experience, since these are the measures of truth[580].

As will be shown, these schools are evident in Gibson's understanding of perception. However, here it is important to highlight three elements which come from radical empiricism that appear in Gibson's ecological psychology. First, what is experienced is not only things or objects, but also the relations between them. Indeed, relations are primordial in knowledge, since James is adamant that they are part of pure experience. Second, the defining characteristic of Jamesian knowing is selectivity: through knowing processes, structure is selected out of, or differentiated from, immediate experience[581]. This is how the subject-object dichotomy arises: it is differentiated at a second stage, since what is initially given is a union of experience. Thirdly, through this selective process, *precepts* and *concepts* arise, the former, the singular "objects" separated out of pure experience, and the latter, a further abstraction from experience[582].

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[579] HEFT, *Ecological psychology*, 40.

[580] See HEFT, *Ecological psychology*, 41: "However, one must always bear in mind that concepts are derivative and are in need of continual reevalution and revision against immediate experience…. Concepts should serve the functional needs of individuals…. The 'truth' status of any portion of the conceptual order is ultimately determined by its relation to precepts; Consequently, the conceptual order must be continuously assessed 'pragmatically' by examining concepts in relation to subsequent immediate experience. Here are the beginnings of the program of *pragmatism*, the other half, and the better known half of James's later philosophy".

[581] HEFT, *Ecological psychology*, 36-37.

[582] The notions of precept and concept are crucial for examining affordances, as Barrett indicates (229): "Affordances are percepts; they are *what* we perceive. As such, their characterization should not include the results of our reflective analyses of *how* we perceive them. And yet, Heft (2003: 156) suggests it can be extremely easy to fall into this way of talking, as though what we perceive 'are invariants, flow vectors, tau, and pi values' even though these are abstracted concepts aimed at explaining how we do so" (L. BARRETT, «What's Wrong with Affordances?», *Constructivist Foundations* 15/3 (2020), 229–230).

Behaviorism

Gibson also maintained that he was a behaviorist, though again this school of thought was mediated through Holt[583]. The result is the presence of various unique implications, that is, differences from the typically American version of behaviorism espoused by James Watson[584]. As Heft indicates, Holt was encouraged by the developments of behaviorism but quickly came to criticize two limitations of the school. First, Holt considered that many behaviorists restricted and reduced their study to the functioning of the nervous system or other, small biological units. Instead, he insisted that:

> Behavior is a "coordinated totality" of the whole organism, which is not reducible to its components. Although behavior is unquestionably a product of a functioning nervous system, it is most appropriately studied holistically (i.e., at a molar rather than molecular level of analysis) because unique functional properties, not present at lower levels of functioning, only make their appearance at molar levels. This claim, which has Jamesian roots, alone distinguishes him from classical behaviorists of a Watsonian orientation[585].

The second limitation criticized by Holt is the stimulus as cause of behavior. Most behaviorists, he argued, attempted to explain behavior based solely on the immediate or proximal stimulus conditions. Rather, behavior, understood as the "complex integrated actions of an organism" must be viewed in light of "some distant object or situation"[586]. Later, Gibson himself will criticize the behaviorist notion of

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[583] E.g. J. J. GIBSON, «Autobiography» in E. JONES - R. JONES (edd.), *Reasons for Realism*: describing an encounter with Albert Michotte, Gibson writes "He, a student of Cardinal Mercier and I of the materialist Holt; he, a believer and a phenomenologist and I a skeptic and behaviorist" (22). The context for the remark is of interest: Gibson notes that he has been "in striking near agreement … in everything" regarding perception except "the notion of external information and external meaning" with Michotte. Fabro, too, praises Michotte's work. L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 2, argue that "many authors understand ecological psychology as a version of behaviorism," but the citation provided as proof (A. COSTALL – P. MORRIS, «The "textbook Gibson": The assimilation of dissidence.», *History of Psychology* 18/1 (2015), in 10.1037/a0038398 [3-1-2022], 1–14) is, in my view, much more attenuated in its assessment. In any event, Gibson's own words suffice.

[584] E. J., GIBSON, *Perceiving the Affordances*, 12, labels E. B. Holt as "a radical behaviorist". HEFT, *Ecological psychology*, 59, calls his thought "philosophical behaviorism".

[585] HEFT, *Ecological psychology*, 83.

[586] HEFT, *Ecological psychology*, 84.

stimulus as lacking appropriate reference to the agent's capacity to receive it, and as portraying the agent as simply a passive recipient instead of an active, exploring perceiver[587].

Hence, in Gibson's thought, behaviorism retains its essential core as a functional relationship between stimulus and behavior. However, these two notions must be expanded: a stimulus is not simply what is proximate or immediate, nor just a physical stimulus; rather, a stimulus can be distant, and can be of a variety of conditions or sorts. Likewise, behavior is not simply the twitch of the leg or blink of an eye, the classical responses studied in behaviorism, but rather the entirety of an organism's actions viewed considering proximate and remote causes, as well as the organism's active ability to receive and explore. Finally, it is worth recalling that the level of analysis undertaken by Gibsonian ecological psychology is at the *psychological* level, which is a molar, as opposed to molecular, analysis.

Gestalt psychology

Gibson was introduced to Gestalt theory by Kurt Koffka, and, despite rejecting certain aspects of the theory, Gibson nonetheless maintains that "Koffka, along with Holt, was a main influence on my psychological thinking"[588]. A detailed analysis of the developments and differences between ecological psychology *vis-à-vis* Gestalt psychology can be found in Heft's volume; in short, Heft's judgment is that "for the most part, the influences of Gestalt psychology on Gibson's thinking are in those areas where the Gestalt perspective does not clash with James's radical empiricism, but instead where it reinforces and in some cases extends its themes"[589]. In other words,

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[587] See L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 3.

[588] J. J. GIBSON, «Autobiography» in E. JONES - R. JONES (edd.), *Reasons for Realism*, 11. Likewise, "The emerging doctrines of Gestalt theory seemed to me tenderminded, but I learned a great deal, for the seminar was centered on evidence and the analysis of evidence" (10). From 1920 to 1941, Koffka who resided in Northampton and held weekly seminars that Gibson attended.

[589] HEFT, *Ecological psychology*, 211.

the areas of convergence between Gestalt theory and Gibson's ecological thought are often general themes or insights, whereas the divergences are typically quite pointed.

Gibson took "the idea that the objects of perception (the *Gestalten*) are our primary way of engaging with the world, that the experience is given to us by certain laws that shape it, and that there is no point in reducing those objects into simpler physical units or elements that are recombined in our head because they are already structured and meaningful"[590]. This engagement was decisive, reports Heft, since Gibson's search for patterns and organization in stimuli, a search ignited by these Gestaltist insights, led to his intellectual transformation from a strict behaviorist to an ecological theorist[591].

Likewise, "J. J. Gibson accepted the Gestaltist conception of the stimulus as having a functional relation with the perceiver. Gestaltists understood that meaning or values were subjectively imposed to the natural word, and they offered different characterizations for explaining this"[592]. However, as will be examined later, Gibson greatly modified this claim: "'[t]he crux of this theory is that the demand character, like the valence, was assumed to be in the phenomenal but not in the physical object.' [Gibson] believed that this character was not subjectively imposed"[593].

Gibson also rejected other elements of Gestalt theory. For instance, Koffka proposed the distinction between the geographical environment and the behavioral environment; the first consists of the environment "considered independently of behavior," with properties that "exist independently of any perceiver," whereas the second is "the environment as experienced by a behaving individual"[594]. Furthermore, it is the behavioral environment that provides the connection between geographical

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[590] L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 3.

[591] HEFT, *Ecological psychology*, 211.

[592] L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 3.

[593] L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 4.

[594] HEFT, *Ecological psychology*, 214.

environment and behavior itself[595]. For Gibson, this division unnecessarily split the world into two distinct yet confused realities, two "worlds": in one, the physical or geographical world, the objects exist without value, whereas in the other, the behavioral or phenomenal world, objects have meaning.

On the contrary, Gibson argued that the only way to keep Koffka's assertion that meanings are object properties was to reject the notion of the two environments and to assert that "the affordance of something does *not change* as the need of the observer changes"[596]. Hence, the two directions of thought, although arising from similar considerations, vary immensely regarding the solution to the difficulties considered.

It is Heft who provides a summary conclusion regarding the relation between Gibson's ecological psychology and Gestalt psychology, as well as with a key that will be important for our future considerations. He writes:

> In spite of their various commonalities, Gestalt psychology and ecological psychology remain opposed. Ultimately, what separates these views is that ecological psychology grows out of radical empiricism, *with its rejection of a physical realm—mental realm distinction*, whereas the Gestalt psychology retains this traditional dualist formulation through its Kantian roots[597].

This elimination of the physical-mental distinction will be pivotal for understanding how Gibson conceives of the environment, the perceiving subject, and the affordances that the environment offers. Likewise, it is important to highlight the notion that objects of perception are already structured and have meaning. Lastly, the relationship between stimulus and perceiver is a functional one.

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[595] See HEFT, *Ecological psychology*, 215: "According to Koffka, the behavioral environment is the more immediate 'cause' of behavior. It is 'a mediating link' between the geographical environment and behavior. Viewed in this way, 'the relation between the geographical environment . . . and behavior . . . is thus broken up into two different relationships, that between the geographical and behavioral environment and that between the latter and behavior'". The citation is from K. KOFFKA, *Principles of Gestalt Psychology*, Harbinger, New York 1963 (Heft cites the 1935 version).

[596] See HEFT, *Ecological psychology*, 217. The citation is from J. J. GIBSON, *The Ecological Approach to Visual Perception*, Psychology Press 2014, 130. Emphasis in Gibson.

[597] HEFT, *Ecological psychology*, 232. Emphasis added.

Phenomenology

Lastly, we can consider the possible influence of phenomenology on the formation of ecological psychology. It is undeniable that there are similarities between Gibson's work and phenomenology. With his typical brevity, however, Heft notes that: "Gibson was not a phenomenologist. His behaviorist antipathy to anything sounding mentalistic would prevent him from ever accepting that mantle"[598]. What attracted Gibson was the phenomenological approach to experience, that experience could reveal insights of importance if considered simply as it was and then explained[599]. This phenomenological attitude is precisely what MacLeod would praise in Gibson, calling him "probably the best experimental phenomenologist since David Katz. He first looks at the phenomena, all the phenomena, before he tries to explain them"[600].

Merleau-Ponty's work parallels that of Gibson[601]. However, even though Gibson lectured on *The Phenomenology of Perception* and clearly was aware of the French phenomenologist's major works, the similarity between the two thinkers is not a case of dependence but rather of development from similar sources. As Chemero and Käufer summarize: "Gibson's views and Merleau-Ponty's views are in some respects very similar. That said, for the most part, Gibson did not get his ideas from Merleau-Ponty or other phenomenologists, but from decades of applying the Jamesian tradition in psychology to our perceptual experience"[602]. Hence, it would be erroneous to speak of a general and profound Merleau-Pontian influence on Gibson; the American psychologist did glean some insights from the French phenomenologist but the many

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[598] HEFT, *Ecological psychology*, 117.

[599] Gibson would surely have been exposed to phenomenology by Robert MacLeod, who helped bring Gibson to Cornell and had himself studied under David Katz.

[600] See HEFT, *Ecological psychology*, 118. The citation is from R. B. MACLEOD, «A tribute to J. J. Gibson», in R. B. MACLEOD – H. L. PICK, JR., (edd.), *Perception: Essays in honor of James J. Gibson*, Cornell University Press, Ithaca, NY 1974, 12.

[601] See L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 4.

[602] A. CHEMERO – S. KÄUFER «Pragmatism, Phenomenology, and Extended Cognition» in R. MADZIA – M. JUNG (edd.), *Pragmatism and Embodied Cognitive Science: From bodily intersubjectivity to symbolic articulation*, Walter de Gruyter GmbH & Co KG, Berlin 2016, 67.

similarities between the two stem from common intellectual ancestry rather than from immediate dependence.

Conclusion

In our examination of the theoretical context of ecological psychology, we have seen the influence of various schools of thought. Radical empiricism, buoyed by pragmatism, gives ecological psychology its core, a structure of the world wherein pure experience unites perceiver and object. It is pure experience that overcomes any proposed duality of mind-world, and which provides knowledge about the world, a knowledge which includes the relation between perceiver and object itself. In radical empiricism, knowledge comes from selectivity, which produces the precept, and also allows for a sort of abstraction from the flow of experience, the concept, although experience and precepts are the truthmakers for concepts. Behaviorism also provides insights regarding stimulus and behavior, but these notions will be expanded to encompass a broader content. Gestalt psychology provides an important impetus for the development of ecological psychology, but is of secondary importance to empiricism. What is taken from Gestalt psychology is the notion of structured, meaningful wholes already present in the world, and the functionality that exists between perceiver and object. Lastly, while there are similarities between Gibson's ecological psychology and phenomenology, particularly that of Merleau-Ponty, phenomenology exerts little influence on ecological psychology's theoretical framework.

Key concepts of ecological psychology

The last methodological concern is to clearly define the concepts to be used. Since our aim is to examine perception and its objects, the first concept to be considered is that of perception, followed by the typically Gibsonian notion of affordance.

Perception in ecological psychology

One of the hallmarks of Gibson's ecological psychology is the radical revisioning of the relation between sensation, perception, and the external senses. To grasp the ecological conception of perception, we can consider three points that approach ecological perception from different angles: a) perception is about something, not simply about sensations (which requires a revised understanding of the external senses); b) perception requires action and is oriented towards action, and; c) perception is direct.

Perception is about something, not simply about sensations

In the introduction to *The Senses Considered as Perceptual Systems*, Gibson lays out a provocative thesis: "The seemingly paradoxical assertion will be made that perception is not based on sensation. That is, [perception] is not based on having sensations ... but it is surely based on detecting information"[603]. Elsewhere, Gibson expresses the same idea with different emphases: "Perception is the having and achieving of knowledge about the world.... The process depends on the stimulating of receptors, but receptors are combined into whole input systems with harmonious functions.... The essence of perception is selective attention to something important"[604].

The value of this definition of perception as the pickup or detection of information depends specifically on what Gibson means by information: "Information consists of invariants underlying change. It does not consist of stimuli, nor of patterns of stimuli, nor of sequences of stimuli. A perceptual system does not respond to stimuli (although a receptor does) but extracts invariants"[605]. In explaining the Gibsonian notion of invariants, Heft claims that "perception is the detection of structure over

[603] J. J. GIBSON, *The Senses Considered as Perceptual Systems*, Houghton Mifflin, Boston 1966, 2.

[604] JONES - R. JONES (edd.), *Reasons for Realism*, 262.

[605] JONES - R. JONES (edd.), *Reasons for Realism*, 399-400. The article is from 1976; Gibson dies in 1979. See also 370-373, for an unpublished article from 1974 regarding the differences between the ecological approach and traditional approaches.

time"[606]. These invariant structures (by which he means structures that remain constant across changing angles, and hence can be recognized from any position or point of view), he argues, are revealed in time because structures are revealed by the passage of data through a medium; the paradigmatic example for ecological psychology is the optical array, which refers to the way light bounces off an object. The light that is captured by the perceiver reveals information such as the object's texture, shape, and the like. As perceivers move, they receive different information (since the light is reflected differently and hence reveals different features or aspects), and yet also detect, amidst the differences, that something remains the same, that is, invariant. This invariant structure of an object is revealed only through the perceiver's movements and actions over time since these enable a perceiver to change what is experienced and thus determine what is truly invariant and what is not. A sensation, claims Heft, does not vary over time; it is a mere flash of light or snippet of sound that does not support perception because it does not provide information about invariants[607]. The difference between perception and sensation will be examined in the next section, but the notion of time is pivotal for making this distinction. That the perception of invariants takes place, even in young children, Heft finds supported by research of Philip Kellman and his associates on babies aged 108 to 127 days. Observing the children's reactions to a set object rotated to present various points of view, it seems the infants habituated to the object after viewing it from one angle, and then were able to recognize it in all the other various views. As a result, concluded the team, even very young children can detect these structural invariants[608].

What information these invariants convey or reveal will be seen in the section regarding affordances. Likewise, shortly thereafter, we will also consider the "selective attention" of which Gibson speaks. Here, we will simply examine, first, what Gibson

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[606] PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».
[607] PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».
[608] P. J. KELLMAN – H. GLEITMAN – E. S. SPELKE, «Object and observer motion in the perception of objects by infants», *Journal of Experimental Psychology: Human Perception and Performance* 13/4 (1987), in 10.1037/0096-1523.13.4.586 [13-2-2023], 586–593.

means by "sensation," and, second, what he intends by "whole input systems with harmonious functions".

Sensation

It would be erroneous to assert that Gibson eliminates the notion of sensation *tout court*; indeed, he maintains that stimulations can be "such as to yield little or no information and the resulting experiences can justly be called sensations"[609]. Hence, a slight prick of the skin or flash of light in the eye might be considered a sensation as it is simply a stimulus that affects the sense yet contains little information: indeed, it is impossible for it to yield information. This conclusion arises from the thesis of ecological psychology that information is revealed through the detection of invariants; the detection of invariants can only take place over time, and hence a momentary flash or sound reveals nothing invariant and hence no information. A sensation simply *is*, and reveals nothing. It is possible to see in this the influence of Gestalt psychology which sought to avoid reducing or resolving "objects into simpler physical units or elements that are recombined in our head because [these objects] are already structured and meaningful"[610].

Here it is fitting to recall an important yet neglected feature of Gibsonian ecological psychology that was mentioned earlier: the level of analysis at which the ecological psychologist considers perception. Part of the minimalization of sensations in ecological psychology stems from the science's molar level of analysis: a simple sensation is possible, but the study of such momentary stimulations is not the concern of ecological psychology. This is not to deny the existence of sensations, but rather to acknowledge that such occurrences are "beneath" the concerns of ecological psychology. They pertain to a level of analysis that Gibson is not focused on.

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[609] GIBSON, *The Senses Considered*, 47-48.

[610] L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History and Philosophy of Ecological Psychology», 3. Likewise, see LOMBARDO, *The Reciprocity of Perceiver and Environment*, 154-168, wherein Lombardo discusses the influence of Leonard Troland and the Gestalt school on precisely this point.

A corollary follows: if perception means the pickup of information, then it must have a different relationship with sensation than is usually granted in psychology: Heft claims the traditional view of sensation and perception is that sensation is an impoverished or partial experience of reality, whereas perception is the complete look[611]. However, this is entirely opposed to the Gibsonian vision; Gibson writes that "there can be sensationless perception, but not informationless perception"[612]. Elsewhere Gibson writes: "The pickup of stimulus information … does not entail having sensations. Sensation is not a prerequisite of perception, and sense impressions are not the 'raw data' of perception - that is, they are not all that is given for perception"[613]. At first, the conclusion might seem forced: that there is a difference between sensation and perception can be admitted, but to claim there can be sensationless perception is harder to grasp. The answer lies in Gibson's very specific notion of perception: "for Gibson, perception is objective, whereas sensation is experience correlated with physiological activity…. Sensation and perception are understood as different types of functional relations of experience to the physical world"[614]. In other words, *to sense* and *to perceive* are two very different ways of relating to the world, and the second does not build on the first. Rather, perception is an entirely different mode of engaging the world, one that detects invariants rather than isolated stimulus data. For this, however, there must be a corresponding system that detects the information regarding invariants and not simply isolated sense data, and hence we turn to the role of the external senses as "whole input systems".

The external senses as "whole input systems with harmonious functions"

Given the differences between sensation and perception, it follows that the external senses must be understood in a particular way in ecological psychology: indeed, Gibson sees them "as active rather than passive, as systems rather than channels, and as interrelated rather than mutually exclusive. If they function to pick up

[611] PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».
[612] GIBSON, *The Senses Considered*, 2.
[613] GIBSON, *The Senses Considered*, 47-48.
[614] LOMBARDO, *The Reciprocity of Perceiver and Environment*, 165.

information, not simply to arouse sensations, this function should be denoted by a different term. They will here be called *perceptual systems*"[615], from whence comes the title of the book.

Some observations are in order. First, Gibson's notion of the "senses as systems" is noteworthy. In anatomy and physiology, the term "system" typically refers to "a group of organs that act together to carry on a specialized purpose"[616]. Yet, for Gibson, the term is to be taken in a broader sense to include more than just sense organs:

> The perceptual systems, as it turns out, correspond to the organs of active attention with which the organism is equipped. These bear some resemblance to the commonly recognized sense organs, but they differ in not being anatomical units capable of being dissected out of the body. Each perceptual system orients itself in appropriate ways for the pickup of environmental information, and depends on the general orienting system of the whole body. *Head movements, ear movements, hand movements, nose and mouth movements, and eye movements are part and parcel of the perceptual systems they serve.* These adjustments constitute modes of attention … [and] they serve to explore the information available in sound, mechanical contact, chemical contact, and light[617].

Hence, Gibson's perceptual systems include, not only the sense organ itself, such as the eye or the ear, nerves and receptors, but also all movements and interactions with the environment. A perceptual system, then, is not simply a physical part of the perceiver, a mere channel of sense data; rather, the system includes all the means by which it can interact with the environment, all the movements and actions that enable the perceiver to engage its surroundings. The result is a highly integrated and interrelated system of organs and senses that can explore and engage the world. The organs are necessary and important, but alone they are not sufficient for perception. Indeed, it is on account of this engagement that Gibson insists that perceptual systems are active, not passive; rather than simply receive data, they engage the world and are, in a sense, actively mastering their world. Again, if we bear in mind the thesis that perception concerns the detection of invariants, and this requires time and exploration,

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[615] GIBSON, *The Senses Considered*, 47-48.

[616] See, for instance, D. N. SHIER, *Hole's Human Anatomy & Physiology*, McGraw-Hill Education 2015.

[617] GIBSON, *The Senses Considered*, 58. Emphasis added.

then it naturally follows that perception requires active engagement with the environment.

Perception requires action and is oriented towards action

Movement and action are so critical to the ecological view that Chemero and Käufer give the "second principle of the ecological approach" to perception as follows:

> *Principle 2: Perception is for action.* The purpose of perception is for the control of action. We perceive the world in order to act in it. In fact, a good deal of action is also for perception or cognition. We lean to the left in order to get a better view; we re-arrange the Scrabble tiles to help us figure out what word to play. This intimate, two-way connection between perception and action has an immediate ring of evolutionary plausibility[618].

Action and perception are inseparable in the ecological vision: not only is perception ordered to obtaining information for action, that is, for picking up invariants and hence, affordances in the environment that offer possibilities for engagement (as will be explained) but also actions, such as exploration, make it possible to detect invariants and hence, information. Furthermore, the two can engage in mutual feedback, wherein perception modifies action which, in turn, modifies perception[619]. In short, perception "is the functioning of perceptual systems that include the whole organism … an exploratory and purposeful activity … the detection of the surround in the course of ongoing action by means of structured ambient energy arrays," all directed to picking up information about the surroundings[620].

The mutual interaction between activity and perception is clear. Yet, there remains a last piece of Gibsonian perception to be examined, and it is the relation between the information perceived and the perceiving subject.

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[618] CHEMERO – KÄUFER, «Pragmatism, Phenomenology, and Extended Cognition», 63.

[619] See C. F. MICHAELS – Z. PALATINUS, «A ten commandments for ecological psychology» in L. SHAPIRO (ed.), *Routledge Handbook of Embodied Cognition*, Routledge 2014, 23.

[620] C. READ – A. SZOKOLSZKY, «Ecological Psychology and Enactivism: Perceptually-Guided Action vs. Sensation-Based Enaction», *Front. Psychol.* 11 (2020), in 10.3389/fpsyg.2020.01270 [4-1-2022]: 4, 13, 13.

Perception is direct

A notable claim of Gibson's understanding of perception is that it is *direct*, at least in most cases. Indeed, this aspect is so fundamental that Chemero and Käufer give direct perception as the "first principle of the ecological approach":

> *Principle 1: Perception is direct*. To claim that perception is direct is to claim that perception is not the result of inferences performed on sensory representations. When an animal perceives something directly, the animal is in contact with that thing. This implies, of course, that the perceiving isn't inside the animal, but rather is part of a system that includes both the animal and the perceived object. This just is Jamesian radical empiricism[621].

The terms "direct perception" and "realism" sound appealing to those within the Aristotelian and Thomistic traditions. Yet, Gibson's understanding of direct perception does not simply mean that the perceiver enters into direct contact with the perceived object, as opposed to contacting a mental image or phantasm; this is implied in his works, since he, like James and Holt, rejects the idea of a mind-world dualism. Rather, Gibson's direct realism means much more than a Thomistic realism, and is of a quite different sort, since it arises from his radical empiricism. As Gibson writes:

> What a thing *is* and what it *means* are not separate, the former being physical and the latter mental, as we are accustomed to believe. The perception of what a thing is and the perception of what it means are not separate, either. To perceive that a surface is level and solid is also to perceive that it is walk-on-able. Thus we no longer have to assume that, first, there is a sensation-based perception of a thing and that, second, there is the accrual of meaning to the primary percept (the "enrichment" theory of perception, based on innate sensations and acquired images). The available information for the perception of a certain surface layout is the same information as for the perception of what it affords[622].

Here the influence of James and Holt is patent, since both reject the duality of a mental world and a physical world in favor of *one* world. Indeed, the primordiality of relation comes through clearly, since the invariant is detected as well as the relation to the subject: the surface is level and solid (invariants), and for the subject (the

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[621] CHEMERO – KÄUFER, «Pragmatism, Phenomenology, and Extended Cognition», 63.

[622] JONES - R. JONES (edd.), *Reasons for Realism*, 407-408. Unpublished manuscript of J. J. Gibson from 1971.

perceiver, with a certain body, size, and so on) there can be a relation of engagement, that of walking on the surface.

In other words, in the act of perception, the perceiver not only "sees" or "senses" the object (more properly, the *precept*, to use the terminology of radical empiricism) but also, directly and immediately, knows the value of it; the information the perceiver garners about what an object offers, the information that is picked up, is not added at a second moment by the mind or somehow derived from the senses, but rather is immediately and directly known. In other words, in direct perception, not only is the object perceived, but also the possibilities for engaging it; in the perceiving of the object, I also perceive what it offers me because the relation is also immediately experienced. There is no intermediary step. For instance, when a dog perceives a bone, it immediately and directly perceives it to be chewable on account of the patterns of light, texture, shape, and a plethora of other facets that are offered to it by means of its perceptual systems.

One further remark is in order: while Gibson insists that perception is direct, he also allows for the possibility of a sort of indirect perception. This indirect perception is the privilege of social animals, meaning, they can convey information about the environment to each other without directly perceiving that information themselves[623]. This is not an exception to the rule of direct perception, but rather a reference to the *concept*; in other words, *indirect* here refers to a different order or level. It is the *concepts*, removed from the flow of experience, "analyzed out of the continuum and verbally fixed and coupled together", in the words of James, that are expressed in such indirect perception[624]. Direct perception would still hold as regards the physical or material transmission of the sound waves that constitute the communication; such sounds are directly perceived, but the concepts that are conveyed are one step removed from direct perception, and hence "indirect". What information is conveyed, and how it is done, will be examined in a later section.

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[623] See REED, *J. J. Gibson and the Psychology of Perception*, 305-306.
[624] W. JAMES, *Essays in Radical Empiricism*, 96.

Now, to further examine the nature of Gibsonian direct perception, it falls to us to now consider the notion of affordance, that is, the information or meaning of the perceived object.

Affordances

We have already noted that ecological perception is considered as "information pickup", that is, the perceiving of invariants. Related to these invariants, and revealed by them, is the meaning of the object, or what Gibson terms "affordances". The notion of affordance plays a central role in ecological psychology, but determining precisely what is and what is not an affordance is a difficult task. Indeed, "despite its centrality within ecological psychology, there is not a single definition [of affordances] shared by all ecological psychologists"[625]. To lay the foundations of the discussion, let us study, first, a) J. J. Gibson's writings, and then the considerations of his disciples and critics, namely: b) Michael T. Turvey and the dispositional approach; c) Thomas A. Stoffregen and the emergent approach, and; d) Alonso Vera and Herbert Simon and the representational approach.

Affordances according to J. J. Gibson

Part of the difficulty in determining what an affordance is stems from the evolution of Gibson's thought; in his partial examination of the notion throughout Gibson's *corpus*, Keith Jones indicates changes and modifications, and concludes it is likely Gibson's own research was unfinished at the time of his death[626]. In his earliest works, Gibson used the term *valence*, borrowed from Gestalt psychology, to refer to, either positively or negatively, "the meanings of objects by virtue of which we move

[625] L. LOBO – M. HERAS-ESCRIBANO – D. TRAVIESO, «The History», 7.

[626] See K. S. JONES, «What Is an Affordance?», *Ecological Psychology* 15/2 (2003), in 10.1207/s15326969eco1502_1 [30-10-2021], 107–114. Jones notes that an earlier draft of *The Ecological Approach to Vision* contained a clear definition of affordances that was then weakened in the published version, leading Jones to conclude that Gibson was preparing to further modify his vision. Despite the title, H. S. JENKINS, «Gibson's "Affordances": Evolution of a Pivotal Concept», *Journal of Scientific Psychology* (2009), 34–45, is much broader in its focus than Jones' work.

toward some of them and away from others"[627]. In the 1950 *The Perception of the Visible World*, Gibson flirted with the idea that meaning could be inherent in objects, and hence that meaning existed independently of the perceiver[628].

It was in 1966, with the publication of *The Senses Considered as Perceptual System*, that a developed concept of affordances appeared finally; indeed, Eleanor Jack (E. J.) Gibson noted that the notion of affordances developed gradually while her husband wrote the book[629]. This first concept of affordances is as follows:

> When the constant properties of constant objects are perceived (the shape, size, color, texture, composition, motion, animation, and position relative to other objects), the observer can go on to detect their *affordances.* I have coined this word as a substitute for *values,* a term which carries an old burden of philosophical meaning. I mean simply what things furnish, for good or ill. What they *afford* the observer, after all, depends on their properties[630].

The description is brief, and is not a definition *per se*, but it is apparent that Gibson, at least in this early work, thought of affordances as conveyed through or by means of the other properties, such as color, taste, and the like. These properties are invariant (hence the emphasis on the *constant* properties of *constant* objects) but note that there is a process: from the detection of invariant properties, the observer "can go on", in a second step or at a second moment, to detect what is offered. Based on these properties, opportunities are *afforded* to the observer. The implication is that affordances are *inherent in the objects* in some way; it is not clear that Gibson intends to rule out any subjective element on the part of the observer, but it is simply emphasized that affordances depend on properties which depend on the object. This early definition is more in line with traditional psychology, wherein objects are

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[627] J. J. GIBSON – L. E. CROOKS «A Theoretical Field-Analysis of Automobile-Driving», *The American Journal of Psychology* 51/3 (1938), in 10.2307/1416145 [4-1-2022], 455. We follow the work of Jones, who diligently analyzed a number of Gibson's works to trace the evolution of the notion of affordance.

[628] See J. J. GIBSON, *The Perception of the Visual World*, Houghton Mifflin, Boston 1950, 212. Cited by K. S. JONES, «What Is an Affordance?», 110.

[629] See JONES, «What Is an Affordance?», 111, citing E. J. GIBSON, «Where Is the Information for Affordances?», *Ecological Psychology* 12/1 (2000), in 10.1207/s15326969eco1201_5 [4-1-2022], 53–56.

[630] GIBSON, *The Senses Considered*, 283.

perceived by their properties and meaning comes at a later point. Indeed, it seems that affordances here must be some sort of property or based on properties; the level of analysis, then, is at an objective or material level. Nonetheless, there are some aspects that will be emphasized in later conceptions of affordances that have already begun to take shape here, such as the importance of invariants.

It is Gibson's third and final book, *The Ecological Approach to Visual Perception*, that offers the most comprehensive view of affordances, with a whole chapter dedicated to the topic; however, it is also this text that is the source of the contemporary confusion and debate regarding the topic. Jones, Chemero, and Käufer all note the difficulty in reconciling the various explanations given within the text itself. Consider the following three passages. First:

> The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes,* either for good or ill. The verb *to afford* is found in the dictionary, but the noun *affordance* is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment. The antecedents of the term and the history of the concept will be treated later; for the present, let us consider examples of an affordance[631].

Jones, Chemero, and Käufer all find this explanation to be straightforward and essentially consistent with the earlier text from *The Senses*[632]. Yet, a few pages later, Gibson surprises with a dense paragraph that seems incompatible with the prior writing:

> An important fact about the affordances of the environment is that they are in a sense objective, real, and physical, unlike values and meanings, which are often supposed to be subjective, phenomenal, and mental. But, actually, an affordance is neither an objective property nor a subjective property; or it is both if you like. An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both

[631] GIBSON, *The Ecological Approach to Visual Perception*, 119.

[632] See JONES, «What Is an Affordance?», 111-112: "The first quote sounds quite similar to what J. J. Gibson (1966) wrote in *The Senses Considered as Perceptual Systems,* but it focuses more on how an affordance implies something about how animals and environments complement one another" (111); also, CHEMERO – KÄUFER, «Pragmatism, Phenomenology, and Extended Cognition», 63: "This [text] makes perfect sense. As animals move around, they see what they can do. Walking into a party, we see places to sit and stand, stuff to eat and drink, people to talk to; these are affordances."

> physical and psychical, yet neither. An affordance points both ways, to the environment and to the observer[633].

This paragraph, indicated by Chemero and Käufer, is, by their admission, "puzzling, to put it mildly", yet they argue that this can be understood in light of Gibson's intellectual commitments: it must be admitted, they claim, that "affordances are pure experience"[634]. Certainly, this passage could be interpreted in that light, but earlier in the same text, Gibson notes: "All these offerings of nature, these possibilities or opportunities, these *affordances* as I will call them, are invariant. They have been strikingly constant throughout the whole evolution of animal life"[635]. It is difficult to see in what sense "pure experience" might be considered invariant, even almost constant throughout the whole evolutionary trajectory, or, for that matter, how pure experience could be labeled objective, real, and physical. Part of the solution is to recall that in ecological psychology there is a different level of analysis or emphasis, an analysis that seems to have started after the first consideration of affordances in Gibson's early works. In its mature form, Gibsonian ecological psychology focuses on the psychological level of analysis. This level is at a macro- or molar scale, a level that observes the whole system that encompasses perceiver and world. To attempt to use such labels as "subjective" or "objective" in reference to affordances is to misunderstand the level at which affordances exist and can be studied. That is why affordances are both subjective and objective, or neither: they arise only in the context of a setting that embraces both the perceiver and the object perceived. Perhaps this level of analysis, combined with the understanding that Gibson's thought has evolved, is an explanation of the text that is closer to Gibson's intended meaning.

A third paragraph for consideration, pointed out by Jones, indicates an evolution in Gibson's thought from the previous book, but also leaves many difficulties:

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[633] GIBSON, *The Ecological Approach*, 121.
[634] CHEMERO – KÄUFER, «Pragmatism, Phenomenology, and Extended Cognition», 64.
[635] GIBSON, *The Ecological Approach*, 15. Emphasis in original.

> We have thousands of names for … objects, and we classify them in many ways…. They can all be said to have properties or qualities: color, texture, composition, size, shape and features of shape, mass, elasticity, rigidity, and mobility. Orthodox psychology asserts that *we perceive these objects insofar as we discriminate their properties or qualities.* Psychologists carry out elegant experiments in the laboratory to find out how and how well these qualities are discriminated. The psychologists assume that objects are *composed* of their qualities. But I now suggest that what we perceive when we look at objects are their affordances, not their qualities. We can discriminate the dimensions of difference if required to do so in an experiment, but what the object affords us is what we normally pay attention to. The special combination of qualities into which an object can be analyzed is ordinarily not noticed[636].

Here, the break from tradition becomes much more salient: now for Gibson, perception is no longer of isolated sense qualities. Indeed, previously Gibson stated that meaning or affordances arose at a second moment after the consideration of constant qualities or invariants. Now, Gibson maintains the reverse: affordances are what are perceived, and sense qualities and differences emerge at a second moment, only after consideration. Yet, in some way, these affordances retain an objective element. As Gibson says forcefully:

> An affordance is not bestowed upon an object by a need of the observer and his act of perceiving it. The object offers what it does because it is what it is…. The perceiving of an affordance is not a process of perceiving a value-free object to which meaning is somehow added in a way that no one has been able to agree upon; it is a process of perceiving a value-rich ecological object[637].

Some further insight into this matter can be provided by another Gibson, E. J. Gibson (1910-2002), J. J. Gibson's wife. A renowned psychologist in her own right famous for the "visual cliff" experiment, E. J. Gibson's work is closely tied to her husband's. He notes in the preface to *The Senses Considered* that "This whole inquiry has been shared for years with Eleanor J. Gibson, my wife. In 1963, however, we divided the problems between us, and she has concentrated on perceptual learning and development while I concentrated on the senses. Her forthcoming book will take up the story where mine leaves off"[638]. Hence, we can turn to E. J. Gibson's work on

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[636] GIBSON, *The Ecological Approach*, 125-126. See JONES, «What Is an Affordance?», 111-112.

[637] GIBSON, *The Ecological Approach*, 138

[638] GIBSON, *The Senses Considered*, viii.

learning and particularly her 2000 *An Ecological Approach to Perpetual Learning and Development.* While the text provides countless examples of how perception develops in children, what is important to consider is the definition of affordance that she uses at the foundation of her study. While the descriptions are similar to those of her husband, the manifold nature of affordances comes across more clearly in her writing. Although it is true that E. J. Gibson is not her husband, their closely intertwined intellectual pursuits indicate that her research can provide some insights into the nature of affordances as J. J. Gibson likely understood them.

Emphasizing the objective nature of affordances, E. J. Gibson writes:

> An "affordance" refers to the fit between an animal's capabilities and the environmental supports and opportunities (both good and bad) that make possible a given activity…. Affordances are properties of the environment as they are related to animals' capabilities for using them…. Since an affordance is an objective property of the environment, it exists whether or not it is perceived or realized[639].

Yet, immediately thereafter, Gibson comments:

> Affordances vary with species and with development. Water provides a surface of support for a bug but not for a human. What affords sitting for an adult human differs in size and scale from what affords sitting for a child…. Some affordances may be easily learned; others may require much exploration, practice, and time…. Even a universal affordance for humans, such as the graspability of an object of a given size and location, shows developmental changes that involve learning…. Further development of expertise may involve learning to realize affordances unavailable to nonexperts. A three-inch-wide beam affords performing backflips for a gymnast, but the affordance is not realizable by others; rock climbers learn to use certain terrains for support that do not appear to others to provide a surface of support[640].

In this text, the division of affordances becomes more intricate: first, there is a division of affordances between species. For instance, what affords nutrition to a termite does not afford nutrition to a human. Within one species, such as the human species, it is development that, to some degree, determines affordances. For instance, a seat that affords sitting to an adult does not afford such sitting to an infant or small child. Likewise, there is such a thing as a *universal* affordance that is offered to all

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[639] E. J. GIBSON & A. PICK, *An Ecological Approach to Perceptual Learning and Development* (New York: Oxford University Press, 2000): 15-16.

[640] GIBSON & PICK, *An Ecological Approach*, 16-17.

humans, no matter their developmental stage; an example would be throwability of a ball. Lastly, there are affordances that exist for all humans at a particular developmental level but that are not realizable without a particular skill set: this is the example of the three-inch-wide beam.

We can summarize E. J. Gibson's divisions in this way:

- When speaking of or considering affordances between *species*, a species that can perceive and use the object is said to be *afforded* something, whereas a species that cannot perceive nor use the object is said *not to be afforded* anything by the object; there is no affordance of nutrition in wood for a human, but there is such an affordance for termites.
- When speaking of affordances *within a single species*, there can be differences based on:
  - Natural development: analogous to the consideration of affordances between species, when an object affords something to an individual that it does not, on account of natural development, afford to another, the object is said to *afford* something to the first, and *not to afford* to the second. A chair of a certain height affords sitting to an adult, whereas it does not afford sitting to a child.
  - Specialized development: when an object affords something to an individual, not on account of natural development, but rather of specialized skills (motor or otherwise), the object is said to afford something to all the individuals of that developmental level, but said affordance is *realizable* to those who possess the skill necessary, while the affordance is offered but *unrealizable* to those lacking the requisite skills. The balance beam affords backflipping to all adults, but only some can realize that affordance.
  - Universal affordances: this occurs when an object affords something to individuals in a species, regardless of their level of natural or specialized development. The realization of these affordances can be improved, but is always there (for instance, training can help us to throw a ball faster and more accurately, but throwability is an affordance that exists and is universal, regardless of the individual's skill level).

E. J. Gibson's considerations and our subsequent distinctions are important because they clarify what "subjective" and "objective" refers to concerning affordances. These distinctions are not to be considered at the material or molecular level; as we have seen, ecological psychology considers that such a vantage point would obliterate affordances, which emerge only at the psychological level of analysis. While we will consider the learning of affordances in the following section, these general considerations should be borne in mind as we examine the further developments and interpretations offered later. With J. J. Gibson's death, his research ended, and, as Jones claims, left his future developments and thoughts regarding the notion incomplete. Hence, after Gibson's death ecological psychologists have developed three major approaches to affordances. We will briefly examine these positions starting with Michael T. Turvey's dispositional approach.

Michael T. Turvey and the dispositional approach

Ecological psychologists generally consider Michael T. Turvey's 1992 article "Affordances and Prospective Control: An Outline of the Ontology"[641] as the first attempt at a formal definition of affordance; hence, it is an appropriate explanation with which to begin our examination. Indeed, Turvey's has become the standard, post-Gibson understanding of affordances, positing that affordances are some property or characteristics of the environment[642]. It is worth indicating that, as a foundation for his definition, Turvey first provides a vision of the "ecological ontology": "the ontology of the ecological approach to perceiving and acting is materialist–nothing exists but

[641] M. T. TURVEY, «Affordances and Prospective Control: An Outline of the Ontology», *Ecological Psychology* 4/3 (1992), in 10.1207/s15326969eco0403_3 [5-1-2022], 173–187. Writing in 2003, Stoffregen notes: "To date, the only formal definition of *affordance* has been offered by Turvey (1992)": T. A. STOFFREGEN, «Affordances as Properties of the Animal-Environment System», *Ecological Psychology* 15/2 (2003), in 10.1207/s15326969eco1502_2 [30-10-2021], 116.

[642] See A. CHEMERO, «An Outline of a Theory of Affordances», *Ecological Psychology* 15/2 (2003), 182: "Previous (post-Gibson) attempts to set out an ontology of affordances have typically assumed that affordances are properties of the environment (Heft, 1989, 2001; Michaels, 2000; Reed, 1996; Stoffregen, 2000; Turvey, 1992)". Yet, as will be shown, Heft's position is not as clear as Chemero makes it seem.

matter, and perceiving and acting are wholly attributable to material agency–and dynamicist–everything changes"[643]. While this general framework seems in keeping with Gibson's own emphasis on radical empiricism, this ontological framework has been challenged by researchers (though not many)[644].

Turvey proposes three principal notes of affordances[645]:

1) "An affordance is a real possibility": Turvey explains that "real possibility is identical to lawfulness", in that it regards what *might* take place, but not what *necessarily* must occur[646].

2) "An affordance is a disposition. (In the most general of cases, it will comprise a configuration of substantive properties.)": a disposition is "a property of a thing that is potential or latent or possible (i.e., not occurrent)" and, for affordances, this entails three corollaries: (1) "The disposition to do Y is prior to doing Y (the property exists prior and independently to the action)"; (2) "Dispositionals (or causal propensities) come in pairs," and; (3) "Dispositionals never fail to be actualized when conjoined with suitable circumstances"[647].

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[643] TURVEY, «Affordances and Prospective Control», 175.

[644] Stoffregen in his emergent view accepts the same ontology. For a critique, see, for instance, J. T. SANDERS, «An Ontology of Affordances», *Ecological Psychology* 9/1 (1997), in 10.1207/s15326969eco0901_4 [5-1-2022], 97–112: "Unfortunately, the tendency has been to think of ecological realism as being somehow founded on a materialist basis. This is unfortunate because it reinvigorates the very subject-object dichotomy that the ecological approach so brilliantly overcomes" (97). To remedy the situation, Sanders proposes considering affordances as ontological primitives, the basic unit of meaning and sense for an ontological vision. Although Sanders laments the materialist foundation, it must be understood that he does not explicitly admit a spiritual or immaterial element into his ontology; rather, he seems to be rejecting the notion that matter *qua* matter (taken in the sense of physics and quantum mechanics) can be the suitable ontological foundation for ecological psychology, because at the sub-atomic level, affordances disappear. If affordances are taken as the primitive ontological being, the ontology that is developed is likewise within the perspective of the animal-environment system, and an overarching ontology can be developed.

[645] All three are found in TURVEY, «Affordances and Prospective Control», 179.

[646] TURVEY, «Affordances and Prospective Control», 177.

[647] TURVEY, «Affordances and Prospective Control», 178. Note that some, e.g., STOFFREGEN, «Affordances as Properties», 119, have pointed out the apparent contradiction between the lawfulness of the affordance and its unfailing actualization, a point to which we will return.

3) "An affordance is complemented": Turvey explains that "Whereas an affordance is a disposition of a particular surface layout, an effectivity is the complementing disposition of a particular animal. An effectivity, as the term suggests, is the causal propensity for an animal to effect or bring about a particular action"[648]. This complement is necessary for the affordance: "an affordance is not defined (i.e., is nonexistent) without a complementing animal property." The reverse is also true: "an effectivity is not defined (i.e., is nonexistent) without a complementing environment property"[649].

In other words, Turvey's theory is affordances are properties of the environment, dispositions which offer a real possibility for action, which are complemented by effectivities, that is, causal tendencies to action, of animals; although affordances are of the environment, this complementarity is necessary for the existence of the affordance. Without the animal's tendency to use or cause action by taking advantage of an affordance, the affordance simply does not exist. The complementarity with the animal assures the subjective nature of the affordance as the affordance requires the compatibility of a subject.

This view is sometimes called the dispositional theory of or the dispositional approach to affordances and represents one of the major directions regarding their nature[650]. Although Turvey was the first to formulate a formal definition of affordance, traces of this understanding can be found earlier. Heft's 1989 article explains affordances in the following way:

> The affordances of a given place in the environment establish for an individual what actions are possible there and what the consequences of those actions are. For example, a surface of support at approximately knee height to the individual *affords* sitting on. A seat is a feature of the environment specifiable in terms of properties of the object (i.e., it has a particular mass, height, and width); but its parameters as an affordance are delimited with reference to a specific individual of a particular weight, leg length,

[648] TURVEY, «Affordances and Prospective Control», 179.
[649] TURVEY, «Affordances and Prospective Control», 179-180.
[650] See LOBO – HERAS-ESCRIBANO – TRAVIESO «The History», 7.

> and girth. As a result, what constitutes a seat (or affords sitting-on) will vary among individuals with significantly different body *scaling*[651].

While the tendency of scholars is to read this passage as affirming the dispositional view of affordances, note that Heft's position is much more nuanced than Turvey's. Heft does not say explicitly that affordances are objects or objective properties; rather, he only affirms that "[Affordances] are 'objective' in the sense that they are 'facts of the environment'; what constitutes, e.g., a seat, depends on the physical characteristics of an object"[652]. Yet, these physical properties alone are not sufficient for an affordance. For Heft, the corresponding property in the animal is body size or scaling; this is the property that determines what is an affordance and what is not, and as a consequence an affordance cannot be had apart from a perceiver or subject. In this, it seems that Heft maintains the psychological level of analysis that he sees as key to ecological psychology and which Turvey seems to reject in favor of a more molecular view.

For this reason and others, the dispositional view has several critics. On the one hand, even Turvey has admitted that defining affordances in terms of effectivities, and effectivities in terms of affordances, is circular[653]; this alone is a troubling concession. However, it is Stoffregen's 2003 article, "Affordances as Properties of the Animal-Environment System", that provides a summary critique of Turvey's view, raising several critical questions, some with serious implications. Among them:

- As indicated earlier, Turvey considers affordances as dispositional properties, and that dispositional properties never fail to be actualized given the suitable circumstances. However, Stoffregen indicates that this is not the case; at any given moment, there are an "uncountably large" number of actions available for an animal, some of which are mutually exclusive (e.g., sleeping and eating). How can the animal's actions be explained? Stoffregen notes that Turvey admitted the possibility of many

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[651] H. HEFT, «Affordances and the Body: An Intentional Analysis of Gibson's Ecological Approach to Visual Perception», *J Theory of Social Behaviour* 19/1 (1989), in 10.1111/j.1468-5914.1989.tb00133.x [30-10-2021], 3.

[652] HEFT, «Affordances and the Body», 3.

[653] CHEMERO - TURVEY, «Complexity, Hypersets, and the Ecological Perspective», 31-32.

actions at any given moment, and amended his view to include a "filtering" carried out by a "juxtaposition function." This, however, is nowhere contained in the definition of affordance, and the inability of Turvey to explain the selectivity of animal action is, in Stoffregen's words, a "fatal flaw" in his theory[654].

- Likewise, although Turvey speaks of the complementarity between affordances as properties of the environment and the animal that picks up the information regarding that environment, his definition does not explain the pickup of information "specifying animal properties and … specifying the complementarity of animal and environmental properties"[655]. In other words, this complementarity would need to be perceived indirectly, which contradicts the principle of direct perception upon which ecological psychology is based.

- Thirdly, Turvey insisted that affordances pertain only to the environment. However, by virtue of his definitions, the actualization or realization of an affordance goes beyond that level, and instead pertains to the level of the animal-environment system. Indeed, there are any number of properties that emerge only on the system level, as opposed to the level of the component parts of the system. In a more recent article co-authored with Anthony Chemero, Turvey has reiterated his position, but also admitted that affordances are "genuine features of animal-environment systems"[656]; this concedes that the psychological level of analysis is important but implies that a molecular view of affordances is still possible. Indeed, even more recently (2018), Turvey has proposed that affordances can be understood as "a new kind of primary quality," one that is objective and real[657]. Such a position would seem to return whole-heartedly to the molecular view. While Stoffregen does not expressly reject Turvey's understanding, he notes that the difficulties raise "the

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[654] STOFFREGEN, «Affordances as Properties», 118-120.

[655] STOFFREGEN, «Affordances as Properties», 121.

[656] CHEMERO - TURVEY, «Complexity, Hypersets, and the Ecological Perspective», 33. It is unclear how Turvey intends to reconcile the two positions.

[657] M. T. TURVEY, *Lectures on Perception*, Routledge 2018, 334. The entire section runs from 334-344. Turvey's position is based partially on B. R. FAJEN – F. PHILLIPS, «Spatial perception and action», in D. WALLER – L. NADEL (edd.), *Handbook of Spatial Cognition*, American Psychological Association (APA), Washington, D.C. 2015, 67-80.

possibility that affordances might be properties of the animal–environment system rather than being properties of the environment"[658].

Indeed, it is precisely this possibility that Stoffregen maintains is correct: rather than consider affordances as dispositions for actions inherent in the environment, affordances should be considered as emergent properties of the animal–environment system.

Thomas A. Stoffregen and the emergent approach

Although the first formulations of the emergent approach are clearly stated in Stoffregen's 2000 and 2003 articles, the foundations are much older[659]. For instance, while Heft's 1989 article is often cited as an example of the view that affordances are part of the environment, Heft's text continues with an interesting conclusion: affordances are essentially "*relational* in nature". By this, Heft means to emphasize the intimate link between subject and environment. Indeed, this link is so important that it is precisely here Heft introduces the notion of *emergence*: "With respect to environment-individual analysis, a relational concept refers to a property that emerges out of the interaction between an animal and the environment. Affordances are located at this boundary; they are synergetic properties of an environment-animal system"[660].

Unlike the dispositional approach, in Stoffregen's emergent view "affordances are properties of the animal–environment system, and they exist only at the level of the

[658] STOFFREGEN, «Affordances as Properties», 123.

[659] T. A. STOFFREGEN, «Affordances and Events», *Ecological Psychology* 12/1 (2000), in 10.1207/s15326969eco1201_1 [6-1-2022], 1–28; T. A. STOFFREGEN, «Affordances and Events: Theory and Research», *Ecological Psychology* 12/1 (2000), in 10.1207/s15326969eco1201_11 [5-1-2022], 93–107. T. A. STOFFREGEN, «Affordances Are Enough: Reply to Chemero et al. (2003)», *Ecological Psychology* 15/1 (2003), in 10.1207/s15326969eco1501_03 [6-1-2022], 29–36. Likewise, Stoffregen notes in «Affordances as Properties», 131-132: "At an informal level, the idea that affordances are emergent properties of the animal–environment system was taken for granted by many of the graduate students at Cornell University in the early 1980s (e.g., Gary Riccio, Jack Carroll, myself). In writing this article, I have formalized this idea, but I cannot claim to have originated it".

[660] HEFT, «Affordances and the Body», 4.

animal–environment system"; it is precisely because affordances "arise from relations between animal and environment, affordances are emergent properties of the animal–environment system"[661]. In this way, Stoffregen maintains that affordances keep their nature as possibilities for action, while also explaining their reliance on the physical reality present. Likewise, since the animal enters as part of the system, the goal or objective of the animal figures into which affordance is realized among the unlimited number of options. In this way, not only is the properly psychological level of analysis maintained, but the animal is also able to select between various opportunities to act based on higher level goals or objectives.

Stoffregen's view has important implications for perception. For instance, he writes, "My definition of *affordance* includes all opportunities for action. This means that anything that is not an affordance cannot have consequences for action. I know of no basis within the ecological approach to perception and action for motivating perception of anything that had no consequences for action"[662]. Again, here we find the influence of pragmatism that is influential in Gibson's original notions. Stoffregen is quick to note in a footnote, however, that action or behavior can also include mentation, i.e., thought, such that thought is afforded by the human-environment system.

One further note is in order: earlier, mention was made that Turvey had defined affordance with "an explicit statement of his underlying metaphysics as being materialist, dynamicist, and realist." The emergent view, at least in Stoffregen's understanding, does not challenge or reject that foundation: "I [Stoffregen] accept these metaphysics. I assert, however, that Turvey's definition of *affordance* is not the only definition that can be derived from these metaphysics"[663].

Under the emergent approach, we can also include various theorists who propose that affordances are relations. For instance, in an early article Anthony Chemero specifically goes beyond Stoffregen when the former proposes understanding

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[661] STOFFREGEN, «Affordances as Properties», 124.
[662] STOFFREGEN, «Affordances as Properties», 128.
[663] STOFFREGEN, «Affordances as Properties», 122.

affordances as relations: "I argue that affordances are not properties of the environment; indeed, they are not even properties. Affordances, I argue, are relations between particular aspects of animals and particular aspects of situations"[664]. As relations, affordances are emergent, since they rely on both the environment and the perceiver to come about. Chemero also argues that these relations are *real*, because, as he contends, Gibson understands affordances in light of his radical empiricism and, as was noted earlier, for "the radical empiricist relations are perceivable, and anything perceivable is real"[665].

Likewise, Chemero's 2003 position specifically rejects the notion that affordances are properties. Rather, he considers them to be *features* of the environment, that is, they pertain to the environment as a whole, and not to specific part of it[666]. For instance, to say, "It's raining" ascribes rain to the "here" of the environment, and not to some specific object. Hence, perceiving an affordance "is a matter of perceiving that the situation as a whole has a certain feature, that the situation as a whole supports (perhaps demands) a certain kind of action. All of this is to say that perceiving affordances is placing features, and because features are not properties, any view of affordances that takes them to be properties is mistaken"[667].

Two final comments are in order regarding the emergent view. While it seems that Chemero has dedicated himself more to problems of enactivist neuroscience,

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[664] See A. CHEMERO, «An Outline of a Theory of Affordances», *Ecological Psychology* 15/2 (2003), in 10.1207/s15326969eco1502_5 [5-1-2022], 185-186: "Thus, as Stoffregen (this issue) suggests, affordances must belong to animal–environment systems, not just the environment. Although I agree with Stoffregen on this point, I argue for something more specific: that affordances are relations". Also 184 for the quote.

[665] CHEMERO, «An Outline», 187.

[666] This view is first postulated in A. CHEMERO, «What We Perceive When We Perceive Affordances: Commentary on Michaels (2000)», *Ecological Psychology* 13/2 (2001), in 10.1207/s15326969eco1302_3 [8-1-2022], 111–116. However, it seems that Chemero's thought has become more precise since, on 114, he states: "Sentences of the form 'It's X' are called *feature placing sentences* (Smith 1996; Strawson, 1959). What they do is say that a certain property is present in the environment, but they do not say that the property inheres in any particular object". Emphasis in the original. Chemero's 2003 article implies that he has ceased using the word "property" entirely to describe "feature," whereas here a feature is a sort of property.

[667] CHEMERO, «An Outline», 185.

others have continued to explore and develop his notion of affordances as relations[668]. One such development concerns the stability of affordances. Recall that Gibson maintained, "All these offerings of nature, these possibilities or opportunities, these *affordances* as I will call them, are invariant. They have been strikingly constant throughout the whole evolution of animal life"[669]. However, in their 2006 article, Chemero and Turvey explicitly reject this stability: "Affordances are exquisitely context-dependent and 'quicksilvery': they emerge and dissolve very rapidly, due to small changes in the animal, environment or both"[670]. This thesis seems to be based on the coordination dynamics proposed by Turvey in order to account for continuous action and continuous perception, which is more in accord with the reality of lived life[671]. Such dynamism recalls James' vision of the world, and is perhaps more in keeping with the radical empiricism. A stable affordance, however, would seem to allow for evolution, in that creatures evolve to take advantage of the affordances that are present or even to create new affordances (for instance, the evolution of wings on a previously wingless animal opens many new possibilities for action).

To resolve this impasse, Shaw, Kinsella-Shaw, and Mace recently (2019) proposed borrowing a concept from analytic philosophy: the token-type distinction[672]. Thus, an affordance type would "refer to the stable environmental property and [an

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[668] For instance, A. CHEMERO, *Radical Embodied Cognitive Science*, MIT Press 2011; D. VAN DER SCHYFF – A. SCHIAVIO – A. WALTON – V. VELARDO – A. CHEMERO, «Musical creativity and the embodied mind», *Music & Science* 1 (2018), in 10.1177/2059204318792319 [8-1-2022], 1-18 ; P. SILVA – A. KIEFER – M. A. RILEY – A. CHEMERO, «Trading Perception and Action for Complex Cognition: Application of Theoretical Principles from Ecological Psychology to the Design of Interventions for Skill Learning», in M. L. CAPPUCCIO (ed.), *Handbook of Embodied Cognition and Sport Psychology*, MIT Press, Cambridge 2019.

[669] GIBSON, *The Ecological Approach*, 15. Emphasis in original.

[670] CHEMERO - TURVEY, «Complexity, Hypersets, and the Ecological Perspective», 33.

[671] M. TURVEY, «Impredicativity, Dynamics, and the Perception-Action Divide», in V. K. JIRSA – J. A. S. KELSO (edd.), *Coordination Dynamics: Issues and Trends*, Springer-Verlag Berlin Heidelberg, Berlin 2013, 1-20.

[672] R. E. SHAW – J. M. KINSELLA-SHAW – W. M. MACE, «Affordance Types and Affordance Tokens: Are Gibson's Affordances Trustworthy?», *Ecological Psychology* 31/1 (2019), in 10.1080/10407413.2018.1508353 [8-1-2021], 49–75.

affordance *token*] to the context dependence of specific instances of affordances"[673]. While the concept is a more recent development in the history of philosophy, the three authors make specific recourse to Aristotle over Plato, rejecting the notion of "Platonic idealism and transcendental forms" in favor of the Aristotelian "process theory of modalities" as beings naturally progress from "possibility to potentiality to actuality"[674]. In other words, an affordance type is the stable feature of the environment that in general permits action, affordance understood loosely, whereas an affordance token would be the affordance in the proper and strict sense of the term as a psychological-level feature that relates perceiver and perceived.

Secondly, others have attempted to modify Chemero's definition in order to accommodate affordances more easily within the human context. In 2014, Erik Rietveld and Julian Kiverstein proposed that "*affordances are relations between aspects of a material environment and abilities available in a form of life*"[675]. The authors maintain that "form of life", a Wittgensteinian concept which can be related to Gibson's concept of niche (the set of affordances where an animal lives), can also encompass the human sociocultural context as well as individual abilities or skills[676]. This broader definition provides for a much wider variety of affordances than Chemero's, and hence the authors see it as an advancement or improvement, while maintaining the same relational aspect[677]. Likewise, this would seem to explain

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[673] CHONG - PROCTOR, «On the Evolution of a Radical Concept», 121

[674] SHAW - KINSELLA-SHAW – MACE, «Affordance Types and Affordance Tokens», 61.

[675] RIETVELD, E. - KIVERSTEIN, J., «A Rich Landscape of Affordances», *Ecological Psychology* 26/4 (2014), in 10.1080/10407413.2014.958035 [30-10-2021], 335. Emphasis in the original.

[676] See GIBSON, *The Ecological Approach to Visual Perception*, 128: "Ecologists have the concept of a *niche*. A species of animal is said to utilize or occupy a certain niche in the environment. This is not quite the same as the *habitat* of the species; a niche refers more to *how* an animal lives than to *where* it lives. I suggest that a niche is a set of affordances…. The niche implies a kind of animal, and the animal implies a kind of niche".

[677] There are other, less notable proposed modifications. For instance, in his *The Philosophy of Affordances,* Manuel Heras-Escribano proposes that affordances understood "as Rylean dispositions is the best way to make [*sic* – do?] justice to the main principles of ecological psychology": M. HERAS-ESCRIBANO, *The Philosophy of Affordances*, Springer 2019, 89. Presumably the error is a literal translation from *hacer justicia.* In Heras-Escribano's view, affordances are dispositions (and hence in general agreement with Turvey's thesis); "Ryle

evolutionary aspects of affordances and the creatures that dwell in particular niches, in accord with the thought of philosopher Peter Munz, who himself studied under Wittgenstein: for Munz, "every organism is an embodied theory about its environment…. This means that there are at least as many embodied theories around as there are species of organisms and that each embodied theory has its own *Umwelt*. The *Umwelt* is virtually and literally the creation of the organism"[678].

With these differences and considerations in mind, we can turn to the third vision of affordances, namely, that found in the representational approach.

Alonso Vera and Herbert Simon and the representational approach

This third view of affordances differs radically from both the dispositional and the emergent views. Whereas the latter two consider perception to be direct and non-representational, as these are dogmas of Gibsonian ecological psychology, this view portrays affordances as mental representations. Chemero and Turvey indicate Alonso Vera and Herbert Simon's 1993 article, "Situated Action: A Symbolic Interpretation" as the origin of this view[679]. Vera and Simon approach the issue of affordances in light of models of situated action, and propose that "the thing that corresponds to an

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thought of dispositions as propensities, tendencies or abilities, but not as 'facts' or 'occult happenings' that trigger certain manifestations"; the advantage, argues Heras-Escribano, "is when we use a dispositional term, we are making richer explanations than the ones containing non-dispositional terms": M. HERAS-ESCRIBANO, «Précis of The Philosophy of Affordances», *Constructivist Foundations* 15/3 (2020), 205. See also M. HERAS-ESCRIBANO, «Non-Factualist Dispositionalism», *Philosophia* 45/2 (2017), in 10.1007/s11406-016-9784-x [15-2-2023], 607–629. For a critique, see J. KIVERSTEIN, «In Defence of a Relational Ontology of Affordances», *Constructivist Foundations* 15/3 (2020), 226–229, as well as L. BARRETT, «What's Wrong with Affordances?», who notes on page 230: "[Heras-Escribano] has not adequately made the case that a shift to non-factualist dispositions offers a better solution than Stoffregen's relational account of affordances". Some have recommended revisiting affordances in light of the philosophy of Merleau-Ponty, as Nina Bonderup Dohn has. The result is an interesting proposal: affordances should be seen "interaction potentials" which require a certain bodily scheme, which includes the abilities of the subject who perceives and is interested.

[678] P. MUNZ, *Philosophical Darwinism*, Routledge, New York 2003: 154, 158.

[679] CHEMERO - TURVEY, «Complexity, Hypersets, and the Ecological Perspective», 32-33. Interestingly, although the Chemero – Turvey article is from 2007, they make no reference to developments between the 1993 article and their own.

affordance is a symbol stored in central memory denoting the encoding in functional terms of a complex visual display, the latter produced, in turn, by the actual physical scene that is being viewed"[680].

Likewise, the authors claim:

> Affordances, far from removing the need for internal representations, *are* carefully and simply encoded internal representations of complex configurations of external objects, the encodings capturing the functional significance of the objects. Affordances, more familiarly known as 'chunks,' have long played an important role in symbolic information-processing systems that solve problems, learn, and perceive[681].

The criticism that Chemero and Turvey level at this view is simply that "it violates Gibson's goal of developing a theory of perception as unmediated contact between an active animal and the environment"[682].

The critiques from within the cognitivist school, to which Vera and Simon belong, are much more frequent and substantial. Indeed, the issue of *Cognitive Science* in which the Vera – Simon article appears is dedicated almost entirely to critical responses to said article as well as the replies of Vera and Simon to these critiques[683]. Of the critiques, two, the article by James G. Greeno and Joyce L. Moore, as well as that of Philip E. Agre, make mention of the Vera – Simon vision of affordances. Agre's article notes the changing definition of affordances: Vera – Simon begin by defining

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[680] A. H. VERA – H. A. SIMON, «Situated Action: A Symbolic Interpretation», 17/1 (1993), in 10.1207/s15516709cog1701_2 [8-1-2022], 20.

[681] VERA - SIMON, «Situated Action», 41. Emphasis in the original.

[682] CHEMERO - TURVEY, «Complexity, Hypersets, and the Ecological Perspective», 33.

[683] The articles are (in order): D. A. NORMAN, «Cognition in the Head and in the World: An Introduction to the Special Issue on Situated Action», 17/1 (1993), in 10.1207/s15516709cog1701_1 [9-1-2022], 1–6; VERA - SIMON, «Situated Action», 7-48; J. G. GREENO – J. L. MOORE, «Situativity and Symbols: Response to Vera and Simon», 17/1 (1993), in 10.1207/s15516709cog1701_3 [9-1-2022], 49–59; P. E. AGRE, «The Symbolic Worldview: Reply to Vera and Simon», 17/1 (1993), in 10.1207/s15516709cog1701_4 [9-1-2022], 61–69; L. SUCHMAN, «Response to Vera and Simon's Situated Action: A Symbolic Interpretation», 17/1 (1993), in 10.1207/s15516709cog1701_5 [9-1-2022], 71–75; A. H. VERA – H. A. SIMON, «Situated Action: Reply to Reviewers», 17/1 (1993), in 10.1207/s15516709cog1701_6 [9-1-2022], 77–86; W. J. CLANCEY, «Situated Action: A Neuropsychological Interpretation Response to Vera and Simon», 17/1 (1993), in 10.1207/s15516709cog1701_7 [9-1-2022], 87–116; A. H. VERA – H. A. SIMON, «Situated Action: Reply to William Clancey», 17/1 (1993), in 10.1207/s15516709cog1701_8 [9-1-2022], 117–133.

affordances as mental, "like some variety of idealism", but this eventually progresses into ambiguity as affordances come to refer to predicates, then some part of the exterior world, then "things in the world that produce stimuli"[684]. Ultimately, Agre concludes, their system is "unable to make any stable sense of concepts that reside neither in the agent nor in the world, but in the relationship and interaction between the two"[685]. Hence, Agre's criticism seems to come to bear on the psychological analysis that is proper to the ecological understanding of affordances. In their response, Vera – Simon contend that their meaning of affordance is in fact quite clear, as Greeno and Moore understood: "We use the term without quotation marks to refer to the mental symbol, with quotation marks to refer to its denotation in the external world"[686].

The Greeno – Moore reply focuses on the definition of affordance vis-à-vis Gibson. Whereas Vera – Simon radically reinterpret the notion, Greeno – Moore claim that such a revisioning is not necessary; in their own theory, Gibson's notion can be maintained. The issues at hand relate more to difficulties in symbol-processing theory, and hence revolve more around difficulties within the cognitivist school rather than with ecological psychology *per se*.

While this third option has been largely rejected among ecological psychologists because of its heterodox views within the Gibsonian framework, it does raise the possibility of radically transforming the notion of affordances.

Conclusions

After having considered ecological psychology as a branch of experimental psychology, we have also examined its theoretical context: it arises from both pragmatism and radical empiricism, with influences from behaviorism and Gestalt psychology, while, despite similarities, phenomenology exerts little to no influence. To complete our methodological considerations, we examined two key concepts: perception, and with respect to it sensation and sensory systems, and affordances, both

[684] AGRE, «The Symbolic Worldview: Reply to Vera and Simon», 66-67.
[685] AGRE, «The Symbolic Worldview: Reply to Vera and Simon», 67.
[686] A. H. VERA – H. A. SIMON, «Situated Action: Reply to Reviewers», 78.

as J. J. Gibson presented them and as they have been interpreted since his death. In order to further our study with the possibility of integrating Gibsonian insights into a Thomistic epistemological framework, we must finally determine which understanding of affordances best fits. Of the positions considered, only Turvey's dispositional view and Stoffregen's emergent approach are widely accepted as following in the Gibsonian tradition and hence we will consider only these two options.

The dispositional view of affordances

As explained above, in the dispositional view, affordances are dispositions in the environment that offer a real possibility for action; affordances are the environmental component, a property of it or a resource found in it, and effectivities are the animal or perceiver's complementary disposition. Hence, affordances are purely a feature of the environment, without a subjective aspect, whereas effectivities are the subjective aspect of the perceiver who can make use of the disposition or resource.

An important consideration is what sort of ontological status an affordance-as-disposition might have. In 2018, Turvey proposed that affordances can be understood as "a new kind of primary quality", one that is objective and real[687]. This is a very clear statement and can be a useful point of departure for our considerations. In the Lockian understanding, to which Turvey appears to be referring, the primary qualities are those that are inseparable from the bodies or objects that possess them; such qualities include "solidity, shape, motion or rest, and number"[688]. It is precisely their objectivity, that is, they do not rely on the input or elaboration of a subject, that distinguishes them as primary, as opposed to secondary qualities. While Aquinas divides sensibles differently, in theory a new "primary quality" could somehow be incorporated into his epistemological vision. Yet, the difficulties start to mount as we consider what sort of accident this would be. Consider, for instance, the examples offered by Reed:

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[687] M. T. TURVEY, *Lectures on Perception*, Routledge 2018, 334.

[688] See LOCKE, *An Essay in Human Understanding*, Thomas Davidson, 1829, Book 2, Ch. 8, § 9, 75.

> The *E. coli* in our guts may literally come into contact with lactose molecules, but you and I must be content with encountering milk and milk products to make that molecular encounter possible. The milk affords nutrition to me (in part) because of its lactose content—but the lactose as such has no affordance for me; it is simply one of the things that nourishes me when I ingest milk[689].

The difficulty is immediately salient: on the one hand, Reed seeks to maintain that the affordance is present in the object yet, at the same time, he cannot escape the reality that the affordance is also intimately linked to the subject in a way that seems to preclude an entirely objective nature. If we assume that "affordance" is some objective quality, by virtue of being a quality it is thus an accident which must adhere in the substance. In this case, "nutrition" or "capable-of-giving-nutrients" should inhere in both milk and in lactose. Yet, Reed specifically denies this is the case: for me, milk affords me nutrition, lactose in milk affords me nutrition, but lactose *qua* lactose does not afford me nutrition. Presumably the reverse could be said for the *E. coli* in the gut: lactose *qua* lactose affords nutrition to the bacteria, whereas the other molecules in milk (e.g., water and triglycerides) afford me nutrition, but not the bacteria. Hence, while affordances might be a resource in the environment, their strictly objective character, meaning, an affordance is an environmental property that can be identified and labeled regardless of the subject who perceives it or without reference to the subject to whom it is available, seems doubtful. To be fair, Turvey and Reed are not completely wrong in their assessment: we can think of affordances of certain objects that exist ubiquitously for all species, and some which do so without being perceived. For instance, certain surfaces, such as knife blades, afford cutting, without reference to a particular perceiving subject. A dog, a walrus, and a human will all be cut if they come into contact in a certain way with a knife blade. Likewise, *Toxicodendron rydbergii* (poison ivy) affords itching and a rash to humans, who typically suffer these consequences precisely because they did not perceive the presence of the plant.

However, such affordances are the exception to the norm. Indeed, the knife affords much more to a human than it does to the dog and walrus, and while poison ivy affects most (though not all) humans, animals such as dogs are not typically bothered

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[689] REED, *Encountering the World*, 17-18.

by it, and still other animals eat it for food. If we wanted to follow Reed more accurately, we would need to say that urushiol, the chemical toxin produced by poison ivy, affords itching to humans. The difficulty can be seen clearly by considering the expression: "Lactose affords nutrition". If an affordance were simply an objective "primary quality", the statement could stand. However, as has been seen, in order to determine the veracity, reference to a subject is needed: lactose indeed affords nutrition to *E. coli*, but it does not afford it to humans. The truthmaker is partially based on the object, for instance, on its chemical properties and structures, but also, and irreducibly, with reference to a particular subject, setting aside the handful of affordances that are ubiquitous.

As Reed's examples continue, our initial impressions are reinforced: the foraging of deer on grass, or of a cheetah seeking a gazelle, describe realities that are undeniable[690]. Yet, the question remains: can we really say that the affordance is a strictly objective quality? Consider the foraging of a deer on grass: the deer recognizes the grass as affording nutrition. However, dogs will eat grass as well: not, it is true, as their standard diet, but rather as a dietary supplement or as an emetic. If we are to say that an affordance is a resource or a disposition in the environment, and want to attribute a strictly objective quality to that resource, it seems that 1) anything and everything is an affordance, because everything is useful to some creature, somewhere, at some time, and, as a consequence, 2) the notion of affordance becomes so broad and vague as to encompasses the whole range of *entia*, and hence becomes a notion devoid of any real value. Given that the creature or the one perceiving seems to have an influence on what an affordance is, let us now turn to another possibility: the vision of affordances offered by the emergent view, namely, that affordances are relations. This will be the approach adopted for the second part of this chapter.

At the end of our properly Gibsonian considerations, we can return to Maritain's statement with which we ended the introduction: the empirical sciences, he claims, study the concealed essences of things, which permit us to know causes by

[690] See REED, *Encountering the World*, 40.

reason of their effects represented by signs[691]. The sign which ecological psychology studies is the affordance, which represents harm, help, or any other possible engagement with an object. In social animals, these signs can be furthered represented by other signs or symbols.

Now we can begin with the properly theoretical part of this chapter: whether Gibsonian ecological psychology can offer insights for a Thomistic epistemology of perception and, if so, in what ways. Likewise, we will consider in what ways the Thomistic understanding of perception offers some insights for ecological psychology.

Gibsonian insights for Aquinas and Fabro

Having laid the foundations with our discussion of J. J. Gibson's ecological psychology, let us turn our attention to the dialogue between Fabro's Aquinas and Gibson. We have already mentioned several principles and philosophical presuppositions in Gibson's work; now we can consider five points of ecological psychology which could be integrated into the framework of a Thomistic epistemology. These five points are: 1) the importance of movement and active exploration for perception; 2) affordances as relations; 3) attention; 4) indirect perception and language, and 5) learning.

The importance of movement and active exploration for perception

As was discussed earlier, the subject's movement, understood in a particular way as active exploration, is essential for perception in ecological psychology because movement reveals which features of the environment are invariant and which are not. Numerous studies, such as the one conducted by Mark and his team, have shown that movement produces more accurate judgments about objects[692]. Indeed, it would seem that intuitively we know to look more closely at an object if we are trying to figure out

[691] Cf. J. MARITAIN, *Degrees of Knowledge*, 42.

[692] L. S. MARK – J. A. BALLIETT – K. D. CRAVER – S. D. DOUGLAS – T. FOX, «What an Actor Must Do in Order to Perceive the Affordance for Sitting», *Ecological Psychology* 2/4 (1990), in 10.1207/s15326969eco0204_2 [12-2-2023], 325–366.

what it is; if we have it in hand, we examine it from different angles, shake it and listen, and bring it into the light. Could the importance of such exploratory and manipulative movements as seen by ecological psychology be incorporated into a Thomistic epistemological framework?

Invariants and the proper sensibles

First, it must be recalled that Gibsonian perception involves the detection of invariants, and this, in turn, implies two elements: time and movement of the subject. Time is indispensable, since invariant means precisely unchanging over time, and the subject's own movement, understood as active exploration, allows for different angles of vision and changing sensory input, be it from touch, sound, or any sense, which can, in turn, confirm or refute the existence of an invariant. The first factor seems obvious; the second came later in Gibson's works, as he gradually became convinced of the importance of "active retrieval of information about the environment"[693].

At first glance, Thomistic epistemology would appear to have little room or need for incorporating time and movement into perception. The difficulty starts with Gibson's understanding of invariants, which do not translate easily into Thomistic categories. Gibson's invariants are structures that remain constant even while the perceiving subject changes viewpoints. For instance, in the study by Kellman, et al., the invariant structure was literally the physical structure, the shape, of an object[694]. However, Gibson understands structure in a broader sense than mere physical structure. For instance, he considers the "hardness" and "softness" detected by touch as potential invariants, but such accidents might be considered a proper sensible according to Aquinas[695]. Elsewhere Gibson considers "color" as an invariant, which is certainly a

[693] Julian Hochberg's «James Jerome Gibson: 1904-1979» in NATIONAL ACADEMY OF THE SCIENCES OF THE UNITED STATES OF AMERICA, *Biographical Memoirs: V.63*, National Academy Press, Washington, D.C. 1994. 161-162

[694] P. J. KELLMAN – H. GLEITMAN – E. S. SPELKE, «Object and observer motion in the perception of objects by infants.», *Journal of Experimental Psychology: Human Perception and Performance* 13/4 (1987), in 10.1037/0096-1523.13.4.586 [13-2-2023], 586–593.

[695] See GIBSON, *The Senses Considered as Perceptual Systems*, 128.

Thomistic proper sensible[696]. In other words, when Gibson considers invariants, he is considering not only properties that Aquinas considers as proper and common sensibles, but also considering them under a different light, namely, as they remain unchanged over time. It could be said that for Gibson, the formal object of perception is the invariant structure and, with it, the affordance that is offered.

With this, at first glance it seems that for Aquinas neither time nor movement are necessary for perception. Aquinas often repeats the axiom that the external senses do not err regarding their proper objects, that is, color for the eye, smell for the nose, and so on[697]. In other words, what is first sensed is accurately sensed, and hence there should be no need for time or the subject's movement to provide a second sensation of the same object so as to confirm or reject its invariance. A single accurate sensation should suffice.

Invariants and the common and per accidens sensibles

However, the conclusion that time and subject movement are unnecessary for Thomistic perception is hasty and forced. While it is true for Aquinas the senses themselves do not err in their sensation of their proper objects, there can be errs of judgment by the intellect regarding what was sensed. This is seen more clearly when considering other potential invariants, such as movement and shape; these are potentially invariable *vis-à-vis* Gibson and are common sensibles *vis-à-vis* Aquinas. Regarding these, Thomas contends that errors can be made by both the sense itself and

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[696] See GIBSON, *The Ecological Approach to Visual Perception*, 311-312.

[697] For example, consider: SCG (1260-1261): "The intellect cannot err regarding the nature of things, "neither can the senses about their proper sensible objects" (III, c. 91); regarding the accidents of the Eucharist, "about these things we cannot be deceived, because the senses are not deceived about their proper sensible objects" (IV, c. 62); ST (I, 1265-1267): Regarding whether there is falsity in the senses, "Sense, then, has no false knowledge about its proper objects, except accidentally and rarely, and then, because of the unsound organ it does not receive the sensible form rightly" (I, q. 17, a. 2, corpus); DA (1267-1268): "The senses in the act of sensing are always truthful; they cannot err about their proper objects" (bk. 3, lect. 5, n. 9), and "Sense-perception is always truthful with respect to its proper objects" (bk. 3, lect. 6, n. 7). Here, the only exception allowed is "on account of corruption" [*propter aliquam corruptionem*] on the part of the organ. The dates follow those given by P. PORRO, *Tommaso d'Aquino: un profilo storico-filosofico*, Carocci editore, Roma 2014.

by the intellect's judgment. Numerous citations can be offered as support for this view, some of which are considered below. What is of particular interest are the motives *why* Aquinas contends such errors occur. For instance, in ST (I, 1265-1267) we are told, "But as to common objects of sense, and accidental objects, even a rightly disposed sense may have a false judgment, because it is referred to them not directly, but accidentally, or as a consequence of being directed to other things" (I, q. 17, a. 2, corpus)[698]. In this text, the possibility of error arises from the indirect nature of the sensation of common sensibles and those *per accidens*: such properties are sensed indirectly and are not the proper object, *per se*, of an external sense.

An additional text notes a further factor: in DA (1267-1268) we read, regarding the sensibles *per accidens* (in this case, the *quidditas* or essence of the singular object) that "the senses have also their indirect objects, and with regard to these they can be deceived. What seems to be white is indeed white as the sense reports; but whether the white thing is this or that thing (for example, is snow or flour), is a question often answered badly by the senses, *especially at a distance*"[699]. In the same text, immediately following and regarding the common sensibles, Aquinas contends that "there are the common sensibles, found in things, some of whose accidental qualities are proper sensibles. Thus, size and movement accompany, as common sensibles, the sensible qualities of bodies. And these are very likely to give rise to error; *for in their case our judgment has to adjust itself to differences of distance: things seen further away seem the smaller*"[700].

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[698] "De sensibilibus vero communibus et per accidens, potest esse falsum iudicium etiam in sensu recte disposito, quia sensus non directe refertur ad illa, sed per accidens, vel ex consequenti, inquantum refertur ad alia".

[699] "Autem sensus est circa sensibilia per accidens, et hic iam decipitur sensus: quod enim album sit hoc quod videtur, non mentitur sensus, sed si album sit hoc aut illud, puta vel nix vel farina aut aliquid huiusmodi, hic iam contingit mentiri, et maxime a remotis". Emphasis added.

[700] "Vero sensus est sensibilium communium quae consequuntur subiecta in quibus sunt accidentia quae sunt sensibilia propria (sicut magnitudo et motus, quae sunt sensibilia communia, accidunt corporibus sensibilibus), et circa huiusmodi maxime est deceptio, quia iudicium de his variatur secundum diversitatem distantiae: nam quod a remotiori videtur, minus videtur". Emphasis added.

Aquinas continues insisting on the inerrancy of the external senses regarding their proper object: "What seems to be white is indeed white as the sense reports". Here, the reason for error in judging the common and *per accidens* sensibles is clearer: the fundamental principle is the same, namely, the indirect nature of the perception. However, Aquinas now indicates the difficulty in judging accurately also arises on account of the distance between object and observer[701]. It is this role of distance which comes to the forefront of a consideration in the very late *Commentary on the Metaphysics*.

Invariants and the proper sensibles revisited: the Commentary on the Metaphysics

Porro notes that the date for the composition of Aquinas' commentary on Aristotle's *Metaphysics* is uncertain, observing that Aquinas began designating book Λ as XII in mid-1271. Hence, he considers that the initial books were commented on at an earlier date, probably between 1270 and mid-1271 (and perhaps revised later), while the later books follow that date and were perhaps even completed in Naples after Aquinas left Paris in the spring of 1272[702]. Hence, the *Commentary on the Metaphysics* likely provides us with Aquinas' last views on the topic. In Book 4, liber 14, regarding the truth and appearances, Aquinas gives a complete account of the various sensibles and their relation to distance:

> It is surprising if some should raise the question, or be puzzled, as another text says, as to whether continuous quantities are such as they appear to those who are at a distance or to those who are close at hand. For it is just about self-evidently true that a sense judges quantities which are close at hand to be such as they are and those which are far away to be smaller than they are, because what seems farther away appears small, as is proved in the science of optics[703].

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[701] Aquinas notes that this is because of the angle of view. As the distance between subject and object increases, the angle of view decreases. A smaller angle affects the sense less, and hence objects further away harder to see. See *Super Sent.*, lib. 4, d. 44, q. 2, a. 1, qc. 4 ad 6: "Quod quanto sensus est perfectior, tanto ex minori immutatione facta potest objectum suum percipere. Quanto autem sub minori angulo visus a visibili immutatur, tanto minor immutatio est; et inde est quod visus perfectior magis a remoto aliquid videre potest quam visus debilior; quia quanto a remotiori videtur, sub minori angulo videtur".

[702] See P. PORRO, *Tommaso d'Aquino*, 371, 455.

[703] "Dignum est admirari si aliqui de hoc quaerunt, vel dubitant, secundum aliam literam, utrum magnitudines tales sint quales videntur a remotis, vel quales videntur a propinquis. Quasi

Aquinas' tone might seem surprising: it is *quasi per se verum*, almost a self-evident truth, that distance affects the judgment made regarding quantities. The shape and size of an object appear different based on where the observer is: an observer who is far away will likely judge wrongly, but the one close to the object judges *tales esse quales sunt*, judges things as they are. Size and shape are common sensibles, and so the differing judgments is unsurprising. However, the following paragraph presents the question of a sensible *per se*, and here Aquinas' words are of great interest:

> The same thing applies if someone raises the question of whether colors are such as they appear to those who are close at hand, for it is evident that the farther an agent's power is extended when it acts, the more imperfect is its effect. Fire heats those things that are far away to a lesser degree than those which are close at hand. And for the same reason the color of a perfect sensible body does not change that part of the transparent medium which is far away from it as completely as it changes that part which is close to it. *Hence the judgment of a sense is truer about sensible colors in things close at hand than it is about those in things far away*[704].

In this argument, we see the same principles in operation that were applied earlier to the common and *per accidens* sensibles: distance negatively affects the accuracy of a judgment. Here, however, this applies even as regards the *per se* sensible of color. Does this mean that Aquinas has changed his position to instead affirm that there is a possibility of erring on the part of the senses regarding their proper objects? Such a claim seems strained, given that immediately before this text Aquinas notes:

> Another translation states this better, saying, first, it must be understood that a sense is not false with regard to its proper object, implying that no sense makes a mistake about its own proper object (for example, sight is not mistaken about colors). From this it is evident that the judgment which a sense makes about its proper sensible object is a definite one, so that there must be some definite truth in the world[705].

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enim per se verum est quod sensus propinquas magnitudines iudicat tales esse quales sunt, remotas autem minores quam sint, quia quod a remotiori videtur, videtur minus, ut in perspectiva probatur".

[704] "Et simile est si quis dubitat utrum colores sint tales quales videntur a remotis, vel quales videntur a propinquis. Constat enim quod virtus agentis quanto plus in remotis porrigitur in agendo, tanto deficientior eius invenitur effectus. Ignis enim minus calefacit quae distant, quam quae sunt propinqua. Unde et color corporis perfecti sensitivi non ita immutat perfecte in remoto ut in propinquo diaphanum. *Et propter hoc verius est iudicium sensus de coloribus sensibilibus in propinquo quam in remoto*". Emphasis added.

[705] "Alia translatio melius habet, et primum quidem quia nec sensus falsus proprii est. Sed phantasia non idem est sensui: quasi dicat, quod nullus sensus de proprio obiecto decipitur,

Furthermore, the argument Aquinas makes regarding color blames the object's inability to affect the transparent medium to render its true color visible a distance away. For example, a red book might appear red to me at one meter, but at three meters the book only affects the medium so that I perceive it as a lighter red, and at six meters as pink. Hence, what reaches the perceiving subject at a distance is not an accurate representation of the object's true color. In this way, and in accord with the science of his day, Aquinas saves the truth that the external senses do not err regarding their proper objects, while at the same time admitting that the judgment the intellect makes regarding them can be inaccurate, not on account of the subject's defects but rather on account of the object's weakness at a distance.

If distance can negatively affect the subject's ability to accurately judge the proper, common, and *per accidens* sensibles of an object, as Aquinas certainly claims, then it stands to reason that Aquinas would maintain that movement towards the object is necessary, at least under certain conditions, in order to accurately perceive the object. In this way, the subject's movement allows for the confirmation that a color or shape is truly invariant, or that an object is what it was thought to be.

Movement as active exploration

Movement towards the object is one sort of exploration, but Gibson's understanding of movement as exploration encompasses much more than just locomotion. The importance of exploratory behaviors, encompassing all manner of manipulations of the object, including mouthing, touching, and listening, is well-documented in developmental psychology, thanks in part to the work of E. J. Gibson, and current studies are uncovering further connections between exploratory behavior and language development[706]. Does Aquinas see a need for such exploratory behaviors?

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sicut visus non decipitur de coloribus. Ex quo patet quod iudicium sensus de sensibili proprio est determinatum. Unde oportet determinatam veritatem esse in rebus".

[706] See E. J. GIBSON, «Exploratory Behavior in the Development of Perceiving, Acting, and the Acquiring of Knowledge», *Annu. Rev. Psychol.* 39/1 (1988), in

A few preliminary distinctions are in order: first, developmental psychology has established that the exploratory behaviors of infants and developing children are different from those of adults. For instance, mouthing is a very important part of infantile exploration: "Mouthing behavior develops into an exploratory behavior in which objects are placed into the mouth for a few seconds for purposes of discovery. During this stage of development, children will put their hands and any object that they come in contact with into their mouths"[707]. It is clear, however, that adult exploratory behavior does not normally include mouthing. Research indicates that in general, infants and children explore much more than adults[708]. We could also say that infantile and child exploration is much more physically engaging with the world than are adults' interactions with it, presumably because adults have a reservoir of experience from which they can pull and virtually engage objects; there is no need for adults to mouth a book, for instance, since they already know from past experience the information that mouthing could provide.

Secondly, Aquinas does not have a detailed vision of developmental psychology, and his comments regarding children are often overlooked as antiquated and based on faulty science. Nevertheless, if we examine closely what Aquinas says

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10.1146/annurev.ps.39.020188.000245 [29-5-2023], 1–42; I. BABIK – J.C. GALLOWAY – M. A. LOBO, «Early exploration of one's own body, exploration of objects, and motor, language, and cognitive development relate dynamically across the first two years of life.», *Developmental Psychology* 58/2 (2022), in 10.1037/dev0001289 [29-5-2023], 222–235; D. J. FIDLER – E. SCHWORER – M. A. PRINCE – E.A. WILL – A. W. NEEDHAM – L .A. DAUNHAUER, «Exploratory behavior and developmental skill acquisition in infants with Down syndrome», *Infant Behavior and Development* 54 (2019), in 10.1016/j.infbeh.2019.02.002 [29-5-2023], 140–150; P. MUENTENER – E. HERRIG – L. SCHULZ, «The Efficiency of Infants' Exploratory Play Is Related to Longer-Term Cognitive Development», *Front. Psychol.* 9 (2018), in 10.3389/fpsyg.2018.00635 [29-5-2023].

[707] N. S. TULVE – J. C. SUGGS – T. MCCURDY – E. A. COHEN HUBEL – J. MOYA, «Frequency of mouthing behavior in young children», *J Expo Sci Environ Epidemiol* 12/4 (2002), in 10.1038/sj.jea.7500225 [29-5-2023], 259.

[708] See the recent research by E. G. LIQUIN – A. GOPNIK, «Children are more exploratory and learn more than adults in an approach-avoid task», *Cognition* 218 (2022), in 10.1016/j.cognition.2021.104940 [29-5-2023], 104940, 1-17. This is one of the first studies to attempt to demonstrate empirically that children explore more than adults.

regarding children and perception, we can find a view that is strikingly in accord with Gibson.

Aquinas and movement and perception in infants and children

In general, Aquinas views infants and children as imperfect or defective adults; the adult is the completed state, and so infants and children suffer from "the infirmity of the flesh", which includes a deficient use of their bodily members and a "natural infirmity of mind" in that they have not yet attained perfection of knowledge[709]. Aquinas attributes the deficient use of the body to the child's soft constitution as well as the child's inherent moistness, particularly in the brain. This superabundant moistness impedes the operation of the nervous system, which in turn impedes the movement of the limbs; this is why dry animals, like goats, can move all their limbs at birth[710]. Setting aside this dubious scientific foundation, we can find three consequences which are of great importance:

First, Aquinas contends that because children have tender bodies, they are easily impressionable[711]. This impressionability follows as a consequence of their

[709] See *Super Sent.*, lib. 2, d. 20, q. 2, a. 1, ad 4: "Ad quartum dicendum, quod infirmitas carnis nunc in pueris duo complectitur: scilicet defectum usus membrorum; et hoc congruit naturali infirmitati mentis, inquantum adhuc non pervenit ad ultimum complementum scientiae vel virtutis; quod etiam in primo statu esse potuit: complectitur etiam quamdam poenam in esurie et fletu, et talis infirmitas congruit infirmitati culpae; unde neutrum horum in primo statu fuisset, scilicet nec poena nec culpa".

[710] See *Super Sent.*, lib. 2, d. 20, q. 2, a. 1, ad 5: "Ad quintum dicendum, quod hoc est ex nobili complexione hominis, quod defectum talem in pueritia prae quibusdam animalibus patitur: quia enim est mollis complexionis, ideo membra puerilia ex sui mollitie sunt impotentia ad suos actus exercendos: et etiam propter humiditatem abundantem in pueritia, quod contingit in hominibus prae quibusdam animalibus tum ex magnitudine cerebri, quod homo majus prae aliis animalibus habet, secundum proportionem sui corporis; tum etiam propter qualitatem complexionis, a qua si in humidiorem recedatur propter complexionem aetatis, invenietur superabundans humiditas, quae praecipue impedit motum nervorum. Unde animalia siccae complexionis ut caprae, nascuntur cum membris ad motum habilibus". Similar arguments are employed in ST I, q. 99, a. 1, corpus: "Unde naturale est quod, propter maximam humiditatem cerebri in pueris, nervi, qui sunt instrumenta motus, non sunt idonei ad movendum membra".

[711] For instance, SCG III, c. 103: "Et hoc ponit esse causam fascinationis: quia scilicet anima alicuius vehementer affecta in malivolentia, habet impressionem nocumenti in aliquem, maxime puerum, qui propter corporis teneritudinem est facile susceptivus impressionis". Likewise, ST I, q. 117, a. 3 ad 2: "Sic igitur cum aliqua anima fuerit vehementer commota ad

moistness[712]; it is clear that for Aquinas children are easily able to receive sense impressions, and indeed receive them more easily than adults, since "to receive and retain are, in corporeal things, reduced to diverse principles; for moist things are apt to receive, but retain with difficulty, while it is the reverse with dry things"[713]. Children easily receive impressions but retain with difficulty.

Second, in an interesting observation, Aquinas indicates that the moistness of the brain impedes the activity of the imagination. He notes that:

> The brain is the moistest of the members of the body. Hence if, due to the moistness of that age, children could not have possessed the functionality of the other members, all the less could they have had the full use of the imaginative power, whose organ is in the anterior part of the brain. For abundance of moistness creates a certain confusion of phantasms, as is clear in those who are drunk, due to the large amount of vapor ascending to the head[714].

Since the imagination is responsible for the phantasms that are eventually presented to the intellect, confusion of phantasms results in a "confused knowledge of

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malitiam, sicut maxime in vetulabus contingit, efficitur secundum modum praedictum aspectus eius venenosus et noxius, et maxime pueris, qui habent corpus tenerum, et de facili receptivum impressionis".

[712] This is the argument employed in *In Ethics*, bk. 7, lect. 7, regarding the various temperaments: "E contrario autem est intelligendum, quod sanguinei et phlegmatici habent incontinentiam debilitatis propter humiditatem complexionis, quae non est fortis ad resistendum impressioni".

[713] ST I, q. 78, a. 4, corpus. Note that while it is true that Aquinas often uses the term *immutatio* to describe how external objects effect the senses, there are instances where he uses the term *impressio.* For instance, *Super Sent.*, lib. 3, d. 14, q. 1, a. 1, qc. 4 ad 3: "Ad tertium dicendum, quod sicut abeuntibus rebus sensibilibus remanent impressiones rerum, secundum quas est imaginatio; ita etiam abeunte verbo, in ipso qui desinit videre verbum, remanet impressio in anima ejus a verbo, per quam cognoscuntur ea quae in verbo viderat per species illarum rerum; et haec erit quasi reliquia praeteritae visionis". This sensitivity is why young children are frightened by the "venomous and hurtful" countenance of a witch (see ST I, q. 117, a. 3, ad 2).

[714] *Super Sent.*, lib. 2, d. 20, q. 2, a. 2, corpus: "Inter alia enim membra corporis, cerebrum humidissimum est. Unde si propter humiditatem aetatis; membrorum aliorum officia pueri habere non poterant, multo minus plenum usum imaginativae virtutis, cujus organum est in anteriori parte cerebri, habere poterant. Abundantia enim humiditatis confusionem quamdam phantasmatum creat, sicut patet in ebriis, ex multo vapore ad caput ascendente". See also ad 4, which makes clear the role of the brain's moistness: "Ad quartum dicendum, quod exteriorum sensuum actus in pueris distincti sunt, sed imaginatio confusa est propter cerebri humiditatem excedentem, et ita etiam oportet quod operatio intellectus sit confusa: non enim intellectus immediate ab exterioribus sensibus accipit, sed ab interioribus".

some universals, and afterwards through the succession of time [children] come to know each thing distinctly. Hence in Physics 1 it is said that children in the beginning call every man 'father,' but later designate each individual"[715]. As a corollary to this, the imagination's incomplete functioning, as is the case of a child's, would also have consequences in the retention of forms received (since it is "as it were a storehouse of forms received through the senses") and in a certain creative capacity (since the imagination can "form for itself an image of an absent thing, or even of something never seen")[716]. Such a position finds a modern support in notions such as object permanence, wherein infants and young children gradually come to recognize that a non-visible object still exists and will focus their attention and perhaps even reach towards the object's last visible location[717]. Initially, however, infants cannot "form an image of an absent thing", and simply behave as if a non-visible object had ceased to exist.

Third, there is at least one text Aquinas admits that children learn through a sort of exploration. In the corpus of ST I, q. 101, a. 1, considering whether children born in the state of innocence would have had perfect knowledge, Aquinas argues that, while we cannot know for certain, it is to be assumed that even in that condition the course of nature would be followed. Hence, "we must conclude then, that, in the state of innocence, children would not have been born with perfect knowledge; but in course of time they would have acquired knowledge without difficulty by discovery or learning [*inveniendo vel addiscendo*]"[718]. The implication is that both discovery and exploration are the ways children naturally learn.

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[715] *Super Sent.*, lib. 2, d. 20, q. 2, a. 2, corpus: "Ita ad confusionem phantasmatum sequitur quaedam confusio in actu virtutis intellectivae; et inde est quod pueri in principio confusam cognitionem habent universalium quorumdam, et postmodum per successiones temporis distincte unumquodque cognoscunt; unde in 1 Physicor. dicitur, quod pueri in principio appellant omnem virum patrem, posterius autem determinant unumquodque".

[716] ST I, q. 78, a. 4, corpus; ST I, q. 85, a. 2, ad 3.

[717] See G. S. HALFORD, «Cognitive developmental theories», esp. 299, in M. M. HAITH, *Encyclopedia of Infant and Early Childhood Development, Three-Volume Set, Volume 1-3*, Academic Press 2008.

[718] ST I, q. 101, a. 1, corpus.

Taken together, in these three consequences we find a view that is similar to Gibson's in many respects. Aquinas would agree children gain knowledge through the exploration of their environment. Since they are particularly susceptible to the reception of sensible forms, and particularly hindered in their retention and creation of them, it follows logically children must gain knowledge about their environment through their constant active engagement with it, and in a particularly physical way that is not as necessary for adults. In this, Aquinas would be in accord with Gibson regarding the necessity of movement for perception in infants and children: the developing child needs sensory impressions to be present since their imagination is not fully functioning, and it is their movement, the active exploration of their environment, that provides this. However, in the adult, with a developed imagination, can it be said that movement is still necessary for perception?

Fabro and movement, time, and perception in adults

The perceptual situation of adults is quite different from that of children[719]. While a child's active engagement with the environment and objects seems to be in accord with Aquinas' thought, with the passage to adulthood, presumably the excess of moisture has been dried up to Aquinas' satisfaction, and now the imagination and memory function unimpeded according to their nature[720]. If this is so, are movement and time required for perception in adults? Although Aquinas has given a framework for perception, it is Fabro who provides profound insights that can help reveal the importance of movement and imagination, as well as time and memory, in perception.

[719] "Adult" here is used in the general sense to mean "complete development of faculties" rather than a fixed age. In ST II-II, q. 189, a. 5, Aquinas notes "Et eadem est ratio de pueris qui nondum habent debitum usum rationis, per quem sunt doli capaces, quem quidem pueri habent, ut frequentius, circa quartumdecimum annum, puellae vero circa duodecimum, qui dicuntur anni pubertatis". These ages appear elsewhere in the Thomistic corpus.

[720] The functioning of memory would be impeded by the misfunctioning of the imagination. Without the ability to retain sensible forms and with the production of confused phantasms, it would be impossible to properly retain intentions that are linked to sensible forms and phantasms.

Movement and imagination

Earlier mention was made of the various functions of the imagination: the storing of forms and the formation of images of absent or non-existent objects. It is precisely this ability to manipulate and even create images that Fabro finds indispensable for perception. In a dense chapter of *Percezione e pensiero*, the Italian philosopher approvingly cites the research of Menyhért Palágyi and Viktor von Weizsäcker regarding the importance of movement for perception[721].

From Palágyi, Fabro embraces the notion of *virtual movements*, that is, movements within the imagination. When perceiving an object, we detect its limits and boundaries; we imagine moving it around, and in this way we grasp its extension, figure, and position. This manipulation is so essential to perception that Fabro claims "this is the fundamental principle of a theory of perception: without imagination, that is, without virtual movement, we cannot give any perception of things ordered in space, having a position and a figure"[722]. Fabro cites Palágyi's research approvingly, noting that it has found support in psychological experiments, and while stating that some features of perception Palágyi attributes to movement can instead be assigned to the *schema*, movement can precede and even be the cause of the *schema* themselves. Although Fabro does not explain in further detail what "virtual movement" entails, it does not appear to mean that an adult has the phantasm of the object in their head and moves it around. Rather, this movement appears to be a sort of immediate, virtual manipulation, a sort of consolidation of past experiences and engagements with similar objects and how the subject can engage with them now (which would be in keeping with the notion of *schema*). Indeed, the term *manipulation*, taken in its etymological sense (from *manus*, hand, and *plere*, to fill), seems to be an apt term, since an adult has experience that reveals how to interact with objects, such as cups or plates, even when not all sides are visible.

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[721] FABRO, *PP*. For Palágyi, see 113-116; for von Weizsäcker, 117-123.

[722] FABRO, *PP*, 116: "È questo il principio fondamentale di una teoria della percezione: senza la fantasia, ovvero senza il movimento virtuale, non si può dare alcuna percezione di cose ordinate nello spazio, aventi una posizione ed una figura".

From von Weizsäcker, Fabro takes the notion that what orders and focuses the sense organs of an animal is the natural need to remain in contact, for as long as possible, with certain pieces of their *Umwelt*. It is this principle that gives coherence to animal movements: for instance, a man sees a butterfly and wants to maintain a coherent vision of it, so he moves his eyes, his head, and his body in order to render that image complete and continuous. As Fabro summarizes, that "'coherence' is maintained only under the condition of that succession of movements, so that *the entirety of the process – seeing + moving – is only one act*"[723]. For von Weizsäcker, the act of perception is both the incorporation of motor movements and the object that appears. As with his assessment of Palágyi, Fabro is essentially positive regarding von Weizsäcker's work, noting the importance of movement for explaining the primary organization of perception[724].

While these two positions might not be explicitly found in Aquinas, basing himself on the psychological research of his times, Fabro contends that both the imagination, with the powers that Aquinas assigns to it understood in light of Palágyi's virtual movements, as well as movement as conceived of in von Weizsäcker's work, are necessary for perception. In other words, whereas children need to physically engage and manipulate their environments, adults can perform such manipulations in their imaginations. The external movement of exploratory behavior is in a sense replaced by the internal movement of the imagination that manipulates the object virtually.

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[723] FABRO, *PP*, 117: "La «coerenza» si mantiene soltanto sotto la condizione di tale successione di movimenti, cosicché *tutto il processo – vedere + muovere – è un solo atto*".

[724] For instance, FABRO, *PP*, "Diciamo pertanto che il movimento (animale, s'intende) è reso possibile dalla percezione e la percezione dal movimento: movimento e percezione stanno in relazione di «apertura» l'uno per l'altro, secondo una prestazione vicendevole" (118); likewise, "Riteniamo pertanto che le spiegazioni addotte circa la solidarietà fra movimento e percezione rappresentino un contributo positivo alla interpretazione dell'organizzazione percettiva primaria, ma l'organizzazione primaria è, così come i contenuti che organizza, di carattere «neutro»; non può essere perciò l'ultima ragione della struttura dell'oggetto" (121).

Time and memory

It has been shown that both imagination and movement form part of the Gibsonian and even Thomistic understanding of perception; however, there remains the question of time and memory. For Aquinas, time is inherently a part of memory, as he notes:

> For the apprehension of intentions which are not received through the senses, the "estimative" power is appointed: and for the preservation thereof, the "memorative" power, which is a storehouse of such-like intentions. A sign of which we have in the fact that the principle of memory in animals is found in some such intention, for instance, that something is harmful or otherwise. And the very formality of the past, which memory observes, is to be reckoned among these intentions[725].

The imagination retains the sensible forms that have been received and can also combine them in new ways. In a similar way, the memory retains the intentions that have been perceived, and this always under the aspect of *past*. Like the imagination, it is a store-house, but it "is the storehouse of the sensible intentions [that are] with sensation, [but] have not been received from sensation, as Avicenna says"[726].

Two inter-related points must be noted: first, unlike imagination, which is active anytime there is sensation, there is memory only when there has been a prior experience of the object. Aquinas makes this point on numerous occasions[727]. This seems to be patently clear: there is no memory of something that has not been experienced before, since the memory stores intentions under the formality of past. Without past experience, there is no memory of the object.

With this in mind, however, Aquinas is adamant that while both humans and animals have the power of memory, only humans also possess the capacity to reminisce

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[725] ST I, q. 78, a. 4, corpus.

[726] *Super Sent*., lib. 1 d. 3 q. 4 a. 1 ad 2.

[727] See, for instance, *De Memoria et Reminiscentia*: "Therefore, he says first, that when someone first learns or suffers a sensitive apprehension, there occurs no memory at that time, because nothing reoccurs unless it first existed; but no memory preceded. Therefore, to learn or sense for the first time is not to have a memory reoccur". Likewise, DV q. 10, a. 2: "The term memory can be broadened to include the knowledge by which one knows the object previously known in so far as he knows he knew it earlier, although he does not know the object as in the past in the manner earlier explained. In this way all knowledge not received for the first time can be called memory".

or recollect [*reminiscentia*][728]. This *reminiscentia* "is neither a reoccurrence of memory, in such a way that recollecting is nothing other than remembering again, nor, again, is recollection the first acquisition of some knowable object; e.g., what is formed by the senses or the intellect"[729]. Rather, as he continues, this recollection:

> is nothing other than the searching for something which slipped from the memory. Thus by recollecting we hunt; i.e., we seek what follows from something prior which we hold in the memory. For as one who inquires by demonstration proceeds from something prior which is known, from which he hunts something posterior, which is unknown; so also the person recollecting proceeds from something prior which is held in the memory to rediscover what slipped from the memory[730].

We could envision the process of how memory works in perceiving an object as follows: the object is perceived, and the memory is consulted to see if that object has been experienced in the past and hence the stored intentions can be retrieved. If there is a clear memory, then that memory can be consulted to see which aspects are invariant over time, and which have changed. However, in the case that there is no precise memory recalled, the process does not simply stop; indeed, there must be a consultation of the memory, and then we begin to recall similar objects and make comparisons. Aquinas describes how the process can work:

> In a like mode someone sometimes recollects beginning from some thing which he remembers, from which he proceeds to another by a threefold relationship. At times (he proceeds) by reason of likeness; e. g., when someone remembers something about Socrates, and through this Plato, who is like him in wisdom, occurs to him. At other times (he proceeds) by reason of contrast; e.g., if someone should remember something about Hector, and through this, Achilles occurs to him. Finally, (he proceeds) at times by reason of any closeness whatever; e.g., when someone is mindful of 'father' and through this 'son' occurs to him. The same procedure holds good for any other close relationship, whether of society, or place, or time. For recollection is formed, inasmuch as movements of these kinds follow each other[731].

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[728] See, for instance, *Super Sent.*, lib 2. d. 25, q. 1, a. 1 ad 7: "Animals do not apprehend the notion of fittingness by a comparison, but through a kind of natural instinct. And thus animals have estimation but not knowledge, just as they have memory but not recollection, even though these all belong to the sensitive part". Likewise, ST I, q. 78, a. 4, corpus: "As to the memorative power, man has not only memory, as other animals have in the sudden recollection of the past; but also reminiscence by syllogistically, as it were, seeking for a recollection of the past by the application of individual intentions".

[729] *De Memoria et Reminiscentia*.

[730] *De Memoria et Reminiscentia*.

[731] *De Memoria et Reminiscentia*.

The result is that the memory recalls other, similar objects, and compares them to the present case. From there, invariants and differences can be noted. Hence, in every perception, there is some aspect of past and invariants which comes from the memory; in other words, time is a necessary part of perception, just as Gibson claims, and this in two ways. First, perception takes time because the memory must be consulted, either through remembering or through reminiscence, which is a time-consuming process. Second, perception requires time because it is precisely by means of past experiences, both as an individual and as a part of a particular time, place, and culture, that a person is able to perceive accurately.

Conclusion: Movement and time as necessary for perception in Gibson, Aquinas, and Fabro

For Gibson, time and movement, understood as active exploration of the environment, are necessary in perception because perception is the detection of invariants, and the way to know if something is invariant is to move around and towards it to see if it changes or remains the same over time. As has been shown, for Aquinas movement as locomotion, in moving closer to the object, is necessary for an accurate perception. Likewise, Thomas' considerations regarding children and perception seem to agree with Gibson's insistence on the need for active exploration of the environment. With Fabro's insights, it has been seen that the imagination and movement are also necessary for perception and, considering the role of the memory, time also plays a role in perception within the Thomistic understanding. Hence, Gibson's emphasis on time and movement is not only accurate, but also serves to bring out aspects that are latent in Aquinas' thought.

A final observation is in order: shortly after the text regarding the judgment of the proper sensibles in his commentary on the *Metaphysics*, Aquinas makes a similar comparison regarding weight.

> The same thing also applies regarding the question of whether things having weight are as heavy as they seem to those who are weak or to those who are strong; for it is clear that the strong judge about heavy things as they really are. But this is not the case with the weak, who find it difficult to lift a weight not only because of the heaviness

> of it (and this sometimes happens even with the strong), but also because of the weakness of their power, so that even less heavy things appear heavy to them[732].

In this statement, Aquinas is in agreement with ecological psychologists such as Proffit whose work has shown (as was mentioned earlier) that subjects will report perceiving distances as longer or angles (of hills) as steeper if they are weighted down with a backpack, tired, elderly, or physically unfit[733].

Affordances as relations

A second possible point of integration between Gibsonian ecological psychology and Thomistic epistemology concerns the notion of affordances. As discussed earlier, within the school of ecological psychology there is disagreement regarding the nature of affordances, so a first step will be to determine which definition of affordance to adopt in our discussion. Given that the creature or the one perceiving seems to have an influence on what an affordance is, and the criticisms against the dispositional view have already been considered, let us now turn to another possibility: the vision of affordances offered by the emergent view, namely, that affordances are relations.

The emergent view of affordances

In the emergent view of affordances, an affordance is relational. Again, "with respect to environment-individual analysis, a relational concept refers to a property that emerges out of the interaction between an animal and the environment. Affordances are located at this boundary; they are synergetic properties of an environment-animal

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[732] "Et simile iterum est utrum pondera sint ita gravia sicut videntur debilibus, vel sicut videntur robustis. Constat enim quod robusti de ponderibus iudicant secundum quod sunt. Non autem ita est in debilibus in quibus difficultas ad sustinendum pondus, non solum provenit ex magnitudine ponderis, quemadmodum in robustis, sed etiam ex paucitate virtutis. Unde etiam parva pondera eis magna videntur".

[733] D. R. PROFFITT – J. STEFANUCCI – T. BANTON – W. EPSTEIN, «The Role of Effort in Perceiving Distance», *Psychol Sci* 14/2 (2003), in 10.1111/1467-9280.t01-1-01427 [12-2-2023], 106–112; also M. BHALLA – D. R. PROFFITT, «Visual–motor recalibration in geographical slant perception.», *Journal of Experimental Psychology: Human Perception and Performance* 25/4 (1999), in 10.1037/0096-1523.25.4.1076 [12-2-2023], 1076–1096.

system"[734]. The emergent view of affordances seems to be more in keeping with the level of analysis that is proper to ecological psychology, that is, the *macro-* or *molar* level analysis. Perhaps part of the difficulty with the dispositional view is precisely this, that it attempts to view affordances from a perspective that is inappropriate. To examine if and how the Gibsonian affordance as an emergent relation can be incorporated into a Thomistic epistemology, we must first examine the Thomistic notion of relation.

The Thomistic notion of relation

Aquinas's theory of relations is scattered throughout his opus, and a great deal has been written, particularly recently, regarding relations in Aquinas, as this is a central point in his Trinitarian theology[735]. However, there are several key points that are consistently held by Thomists, of which we can indicate three.

First, the ontological status of *relatio* is that of a categorical accident in the Aristotelian sense, meaning, it does not subsist *per se*, but rather is found inhering in a substance[736]. However, Aquinas considers relations as relative accidents, and not as absolute accidents such as quantity or quality; relative accidents are, as it were, the weakest of the accidents. For this reason, when considering the *ratio*, or the essence of relations, Aquinas argues that "the *ratio* of relation is to be toward another (*ad-aliquid*). The *ratio* of any relation is, as Thomas says, a respect to another, a condition of passing over to another. Unlike quantity and quality, relation considered absolutely does not

[734] HEFT, «Affordances and the Body", 4.

[735] E.g., M. WHITFIELD, «Aquinas on Relations: A Topic Which Aquinas Himself Perceives as Foundational to Theology», 38/1 (2020), in 10.2478/ejsta-2020-0002 [11-1-2022], 15–32; D. SVOBODA, «Aquinas on Real Relation», 6/1 (2016), in 10.14712/23363398.2016.8 [11-1-2022], 147–172; N. AWAD, «Thomas Aquinas' Metaphysics of 'Relation' and 'Participation' and Contemporary Trinitarian Theology», 93/1048 (2012), in 10.1111/j.1741-2005.2010.01362.x [11-1-2022], 652–670; M. G. HENNINGER, «Aquinas on the Ontological Status of Relations», *Journal of the History of Philosophy* 25/4 (1987), in 10.1353/hph.1987.0071 [11-1-2022], 491–515.

[736] See, for instance, HENNINGER, «Aquinas on the Ontological Status of Relations», 492.

imply inherence in a subject"[737]. All relation implies, argues Aquinas, "is a respect or condition toward another"[738].

Second, in the *Metaphysics*, Aristotle posited three classes of relations: numeric (as all imply number: "double to half"), causal (founded "on the accidents of action and passion and active and passive potencies"), and psychological (technically, "the measure and the measured," with the example of the known as the measure in relation to the knower as the measured)[739]. Aquinas modifies this division slightly, but notes that the first two are capable of producing a real relation, meaning, "A real relation is caused and depends for its existence on some real extra-mental foundation in the subject of the relation"[740]. Likewise:

> In the case of a categorial relation Aquinas distinguished among three things: the subject of the relation (the man who begets a son), further its terminus (the begotten son), and finally the foundation of the relation (the act of begetting). A necessary condition of the existence of a categorial relation is that the subject, terminus, and foundation are all real beings and that there is a real distinction between the subject and terminus of the relation[741].

Thirdly, and of particular interest to our study, are the causal relations. The foundation for these relations "is some type of motion". Such relations, Aquinas claims,

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[737] HENNINGER, «Aquinas on the Ontological Status of Relations», 498.

[738] HENNINGER, «Aquinas on the Ontological Status of Relations», 498. Henninger cites *In I Sent.*, d. 26, q. 2, a. a, corp. See also WHITFIELD, «Aquinas on Relations», 17-20, and SVOBODA, «Aquinas on Real Relation», 149-153.

[739] HENNINGER, «Aquinas on the Ontological Status of Relations», 492-494; SVOBODA, «Aquinas on Real Relation», 150-153. The division is from Svoboda, but the examples are from Henninger following Aquinas.

[740] Cf. *De Potentia*, q. 8, a. 1, corpus: "A real relation cannot be conceived unless it arise from quantity or from action or passion". See HENNINGER, «Aquinas on the Ontological Status of Relations», 499. On 493, Henninger gives a useful primer for understanding the terminology surrounding real relations: "If *a* is really related to *b*, then *a* is called 'the subject' of the relation R (of, say, color similarity) to *b*, 'the term.' Inhering in *a* there is an accident of whiteness, *c*, which is called 'the foundation' for the relation R. Conversely, if *b* is also really related to *a*, *b* is 'the subject' of the co-relation R' of similarity to 'the term' *a*. The whiteness *d* in *b* is the 'foundation' of the co-relation R'. Sometimes the scholastics referred to *a* and *b* as the 'extremes' or 'relata' of the relations."

[741] SVOBODA, «Aquinas on Real Relation», 150.

are mutual: “For example, the same type of foundation is found in one, the action of heating, as in the other, the passion of being heated”[742].

With this foundation, can affordances be explained using the Thomistic accident of relation? It would seem feasible. The extremes or the relata of the relation would be the animal that perceives and the object that offers some possibility for action. The relation between the two would be precisely the causal relation between the two, the action: just as “action of interacting” by means of whatever action the subject might use to engage the object, the object, in turn, has the “passion of interacting,” that is, the accident of passion in receiving that action. Given this reversibility, and that the subject, terminus, and relation are all real, that is, extra-mental, realities, this relation could be considered a real relation.

In summary:

1. A relation is an accident that expresses the order of one being towards another.
   1.1. A relation has three elements: the subject, the terminus, and the foundation of the relation itself.
2. Relations are of three sorts: numeric, causal, and psychological.
   2.1. The first two can produce real relations.
   2.2. A relation is real when the three elements are all real and the subject and terminus are really distinct.
   2.3. A causal relation is founded on the accidents of action and passion

Affordances as relations and as sensibili per accidens

Having considered the foundations of the Thomistic doctrine regarding relations, we must now consider whether the Gibsonian concept of affordance expresses what Aquinas might refer to as a relation. Indeed, we find passages to this

[742] HENNINGER, «Aquinas on the Ontological Status of Relations», 511.

effect. For instance, in DA, Bk. 2, Lectio 16, after mentioning human sensibility is joined to the intellect, Aquinas notes that the situation is different in the lower animals:

> But the lower animals' awareness of individualized notions is called natural instinct, which comes into play when a sheep, for example, recognises its offspring by sight, or sound, or something of that sort. Note, however, that the cogitative faculty differs from natural instinct. The former apprehends the individual thing as existing in a common nature, and this because it is united to intellect in one and the same subject. Hence it is aware of a man as this man, and this tree as this tree; whereas instinct is not aware of an individual thing as in a common nature, *but only in so far as this individual thing is the term or principle of some action or passion.* Thus a sheep knows this particular lamb, not as this lamb, but simply as something to be suckled; and it knows this grass just in so far as this grass is its food. *Hence, other individual things which have no relation to its own actions or passions it does not apprehend at all by natural instinct. For the purpose of natural instinct in animals is to direct them in their actions and passions, so as to seek and avoid things according to the requirements of their nature*[743].

The text is very clear: Aquinas uses the paradigmatic example of the sheep and its various interactions with its offspring and its food to show there is a relation of action and passion, and it is precisely this relation the sheep grasps by instinct. What does not offer action or passion is simply not apprehended; by this Aquinas means that although the sheep might see, smell, or in some way sense the object, it does not fall under the animal's consideration because it offers nothing to it in terms of action or passion.

Mutatis mutandis, we can say it is a relation of action and passion that the sheep grasps when it flees from the wolf. This can be affirmed because Aquinas emphasizes repeatedly that the sheep flees from the wolf because of its estimative power or natural instinct, in the same way that it instinctually recognizes the lamb and grass as to be

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[743] "In animali vero irrationali fit apprehensio intentionis individualis per aestimativam naturalem, secundum quod ovis per auditum vel visum cognoscit filium vel aliquid huiusmodi. Differenter tamen circa hoc se habet cogitativa et aestimativa: nam cogitativa apprehendit individuum ut existens sub natura communi, quod contingit ei inquantum unitur intellectivae in eodem subiecto, unde cognoscit hunc hominem prout est hic homo et hoc lignum prout est hoc lignum; aestimativa autem non apprehendit aliquod individuum secundum quod est sub natura communi, sed solum secundum quod est terminus aut principium alicuius actionis vel passionis, sicut ovis cognoscit hunc agnum non inquantum est hic agnus, sed inquantum est ab ea lactabilis, et hanc herbam inquantum est eius cibus; unde illa individua ad quae se non extendit eius actio vel passio, nullo modo apprehendit sua aestimativa naturali: naturalis enim aestimativa datur animalibus ut per eam ordinentur in actiones proprias vel passiones prosequendas vel fugiendas". Emphasis added.

suckled and to be eaten, respectively[744]. This parallel is important to establish because Aquinas is also clear in other texts that what is grasped by the sheep in the case of the wolf, that is, its malice or harmfulness, is what Fabro considers a *sensibili per accidens* or one of the *intentiones insensatae*[745]. Hence, we can say that when the sheep apprehends the malice of the wolf, what it is grasping is the relation of action and passion that exists between the two, namely, that the wolf will seek to harm and kill the sheep. This causal relation, then, can be called a *sensibili per accidens*. It should be recalled, as mentioned in the first chapter, that "by [means of] the 'cogitative' the

[744] See, for instance: *Super Sent.*, lib. 2, d. 24, q. 2, a. 1, corpus: "Vis autem apprehendens hujusmodi rationes convenientis et non convenientis, videtur virtus aestimativa, per quam agnus fugit lupum et sequitur matrem"; ST I, q. 59, a. 3, corpus: "Quaedam vero agunt quodam arbitrio, sed non libero, sicut animalia irrationalia, ovis enim fugit lupum ex quodam iudicio, quo existimat eum sibi noxium; sed hoc iudicium non est sibi liberum, sed a natura inditum"; ST I, q. 81, a. 3, corpus: "Cuius ratio est, quia appetitus sensitivus in aliis quidem animalibus natus est moveri ab aestimativa virtute; sicut ovis aestimans lupum inimicum, timet".

[745] See, for instance: *Super Sent.*, lib. 2, d. 24, q. 2, a. 1, corpus: "Aut est non apprehensa a sensu; sicut inimicitiam lupi neque videndo neque audiendo ovis percipit, sed aestimando tantum"; ST I, q. 78, a. 4, corpus: "Sed necessarium est animali ut quaerat aliqua vel fugiat, non solum quia sunt convenientia vel non convenientia ad sentiendum, sed etiam propter aliquas alias commoditates et utilitates, sive nocumenta, sicut ovis videns lupum venientem fugit, non propter indecentiam coloris vel figurae, sed quasi inimicum naturae".

The considerations of Chapter 1 bear repeating here: Fabro contends that "Le «intentiones insensatae», di cui parla S. Tommaso, coincidono esattamente con i «sensibili per accidens»" (FABRO, *PP*, 158). However, Saint Thomas himself never uses *intentiones insensatae*; the terminology might be implied, for instance, in ST I, q. 78, a. 4 corpus ("Necessarium est ergo animali quod percipiat huiusmodi intentiones, quas non percipit sensus exterior…. Ad apprehendendum autem intentiones quae per sensum non accipiuntur, ordinatur vis aestimativa"), but the term itself seems to have originated with John of Saint Thomas (João Poinsot, 1589-1644), particularly in the third tome of his *Cursus Philosophicus Thomisticus*: e.g, JOANNIS A S. THOMA, *Cursus Philosophicus Thomisticus*, III, Ludovicus Vives, Paris 1883: "Quinto loco est cogitativa et reminiscentia, quae specialiter ponitur in homine, quia utitur aliquo discursu et collatione circa istas intentiones, et circa modum recordandi earum. Unde id quod estastimative in brutis, quae naturali instinctu formant illas intentiones insensatas, in homine dicitur cogitativa, quia cum aliqua collatione, et discursu cogitat et format dictas intentiones, eo quod istae potentiae ex conjunctione ad intellectum, modum quemdam discursivum participant" (399); "Ad confirmationem respondetur, quod non omnes intentiones sunt insensatae, sed aliquae etiam sensatae sunt sicut docet D. Thomas I par. q. lxxviii, art. IV ad 2, quod sensus communis respicit intentiones sensuum exteriorum, sicut sentit nos videre et audire. Illa autem intentio praeteriti est communis rei sensatae, et insensatae, seu his quae cognoscuntur in absentia: computatur autem a D. Thoma etiam inter intentiones insensatas, quia pertinet etiam ad illas, licet non solum ad alias" (408).

singular substance and the '*sensibili per accidens*' … are perceived"[746]. Hence, according to Fabro the grasping of these relations comes from the *vis cogitativa.*

Considered in this light, there are numerous convergences between the Gibsonian affordance-as-relation and the *sensibili per accidens*. Both refer to the possibilities of engagement, either action or passion. For Aquinas, a relation emerges only in the context or presence of both an object and a subject; without a subject, terminus, and foundation for the relation, there is simply no relation. For Gibson, similarly, if there is no possible engagement with an object, there is no affordance, nor can we speak of affordances without considering the whole environmental setting, meaning, the subject and the environment with which it engages. In this, Gibson's notion of affordance adds some clarity to a notion that is often overlooked or unclear in Aquinas' works.

Notwithstanding these conclusions, it should be noted that the dispositional view of affordances also seems to offer an important insight. The dispositional view maintains that affordances are objective features of the environment. While this does not appear to be the best way to view affordances, as we have seen, it expresses the reality that some objects in the environment afford regardless of whether they are perceived. There is a sort of "elementary" affordance, such as the "can cut" of a knife blade or the "causes irritation" of the poison ivy that exists without being perceived; even if a person is not aware of the blade or the ivy, they will nonetheless be harmed when they encounter it. Such affordances can be species-independent or species-dependent: a knife blade cuts all things that encounter it, whereas poison ivy only seems to affect humans and some primates, but not birds, squirrels, or others[747]. Furthermore, some can be individualized: more humans are not bothered by crustacean shellfish or tree nuts, yet those with allergies react dramatically when they enter into contact with them, regardless of whether they perceive the contact or not. While affordances can

[746] FABRO, «PPS», 53-54.

[747] SMITHSONIAN INSTITUTION, «A Poison Ivy Primer», *Smithsonian Institution*, in [14-4-2023].

still be viewed as relations, these considerations garnered from the dispositional view serve as a reminder that affordances are a broad category that may or may not require perception.

Attention

Some ecological psychologists have insisted that "the essence of perception is selective attention to something important"[748]. In a section entitled "The Education of Attention in Perceptual Systems" in *The Senses Considered*, Gibson notes that humans can become better attuned, meaning, faster and more accurate, in a word, more attentive, at detecting invariants and hence affordances; he calls this perceptual development "economical perception"[749]. He states:

> [A] probable kind of perceptual development is the acquiring of what might be called economical perception. It is the ability to avoid distraction - to concentrate on one thing at a time in the face of everything going on in the environment - and yet to accomplish as much knowing as possible. To accomplish this, perceiving must be quick and efficient rather than slow and contemplative. As a result, the information registered about objects and events becomes only what is needed, not all that could be obtained[750].

Gibson notes that this attuning of the whole perceptual system is a skill gained through experience, but not by means of "the *storage* of past experiences"[751]. This is in keeping with his understanding of perception as the detection of invariants and hence affordances. It is not the memory of past experiences *qua* recalled images that helps a perceiver detect invariants; rather, it is the attuning of the perceptual systems to pick up what really matters for the determination of invariants and the ability to ignore what is unimportant for such a determination that constitutes this selective attention. Since Gibson's system is one of direct perception without intermediaries, there would be no place for the memory *qua* stored past experiences to intervene; rather, what is learned is a sort of motor or processual memory. With this background, we can ask two questions about attention, basing ourselves on the assertion that "the essence of

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[748] JONES - R. JONES (edd.), *Reasons for Realism*, 262.
[749] See GIBSON, *The Senses Considered as Perceptual Systems*, 51-52.
[750] GIBSON, *The Senses Considered as Perceptual Systems*, 286.
[751] GIBSON, *The Senses Considered as Perceptual Systems*, 262.

perception is selective attention to something important": first, what is selective attention, meaning, what does it mean to pay attention and, conversely, to be inattentive, and, second, how does "something important" emerge from the vast world of impressions and images?

Selective attention and inattention

Attention is a complex phenomenon, but, in general terms, we can consider attention as the stretching forth of the perceiver's perceptual systems or mind towards a situation, event, or thing[752]. While there might be one way to pay attention, namely, to concentrate on some object, E. J. Gibson distinguishes several sorts of inattention: there is *nonintentional failure to attend*, which is passive, simply-not-paying-attention. To this, we could also add Fabro's distinction between *unconscious* and *unnoticed* stimuli: the former escape all notice and cannot be recalled or focused on, whereas the latter are "co-present" to what we do notice, although in the moment we give them almost no "concomitant actual awareness"[753]. Fabro gives the example of a miller who falls asleep but wakes up, startled, when the mill stops; he notes that Stumpf equates this "concomitant consciousness" with Aristotle's common sense[754]. Presumably, what Fabro means is that while unconscious stimuli might impact the sense organs, they never make the transfer into the common sense; on the other hand, unnoticed stimuli enter the common sense, but receive no special treatment or attention unless focus is then directed to them, as will be examined later.

Per E. J. Gibson, there is also *active inattention*, either when the perceiver adjusts their perceptual systems to diminish or ignore a particular stimulus, or as a *covert shutting out*, "such as occurs when listening to two voices at once and ignoring information coming from one of them"[755]. This *covert shutting out* seems to be written

[752] Etymologically, "attention" derives from *ad-* 'to' and *tendere* 'stretch'.

[753] FABRO, *Percezione e Pensiero*, 111. For a Thomistic perspective in the recent literature, see G. M. REICHBERG, «Toward a Thomistic Theory of Attention», *tho* 88/4 (2024), in 10.1353/tho.2024.a937597 [16-1-2025], 547–597.

[754] FABRO, *Percezione e Pensiero*, 111.

[755] See E. J. GIBSON – H. LEVIN, *The Psychology of Reading*, 28.

into the body itself: for instance, studies on binocular rivalry reveal that the eye itself cannot focus on two different objects at once. It is not certain where the suppression of the inhibited image occurs, as studies have shown evidence for both low-level and high-level sites[756].

These considerations of selective attention and inattention bring to the fore several features of attention. There seems to be a biological limitation in animals that allows for attention to be focused on only one "thing" at a time. Research seems to indicate that at least part of attentional limitation stems from the external sense organs themselves, and Aquinas maintains that the intellect is similarly limited in that it can know only one intelligible species at time[757]. Likewise, Fabro, following Stumpf, argues that we can only focus on one *relation* at a time: we can pay attention to the melody and to the rhythm, but not at the same time[758]. Likewise, we can listen to the whole orchestra, or single out the violin, but not simultaneously[759]. This limit explains such phenomena as change or inattentional blindness, wherein modifications or unexpected changes to a scene pass unnoticed since the observer's attention is focused

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[756] For a literature review of binocular rivalry in general, see M. WOLF – S. HOCHSTEIN, «High-Level Binocular Rivalry Effects», *Front. Hum. Neurosci.* 5 (2011), in 10.3389/fnhum.2011.00129 [31-10-2022]. The authors begin by noting: "Some BR qualities suggest it is low-level: (1) BR, as its name implies, is usually between eyes and only low-levels have access to utrocular information. (2) All input to one eye is suppressed: blurring doesn't stimulate accommodation; pupillary constrictions are reduced; probe detection is reduced. (3) Rivalry is affected by low-level attributes, contrast, spatial frequency, brightness, motion. (4) There is limited priming due to suppressed words or pictures. On the other hand, recent studies favor a high-level mechanism: (1) Rivalry occurs between patterns, not eyes, as in patchwork rivalry or a swapping paradigm. (2) Attention affects alternations. (3) Context affects dominance. There is conflicting evidence from physiological studies (single cell and fMRI) regarding cortical level(s) of conscious perception".

[757] See ST I, q. 85, a. 4.

[758] This is generally the case in humans and presumably animals. However, there are some recorded cases of persons with split concentration, mostly notable Karol Wojtyła: "Wojtyła then proceeded to display quietly his amazing powers of concentration as he wrote poetry in longhand on the lap desk while listening intently to the speeches…. Ursuline Sister Emilia Ehrlich … who taught him English at the archdiocese, was astounded that Wojtyła closely followed lessons while writing a speech or sermon" (T. SZULC, *Pope John Paul II*, Simon and Schuster 1995, 220).

[759] Cf. FABRO, *PP*, 111.

elsewhere[760]. In the case of the "Invisible Gorilla" experiment, the observer's attention is deliberately (by the instructions of the examiner) focused on a particular aspect of a scene, e.g., the number of times a ball is passed. The attention is so focused that even the presence of a gorilla (i.e., an actor dressed in a gorilla costume) entering and exiting the scene is undetected.

At some point within the perceptive process, starting with the external sense organs and through the internal senses, attention is focused on one object to form one phantasm which leads to one intelligible species. This leads to our second consideration: how does the "something important" emerge from the world of sense data, and is there an internal sense that is responsible for this attention? We begin with a consideration of the emergence of something important in general, and then, in turn, with regards to animals and with regards to humans.

The emergence of "something important" in general

We have already mentioned that the external senses can focus attention by limiting what stimuli are received. This is clear in the case of binocular rivalry, but also in the more general consideration that each sense has an inherent limitation regarding what sensory data it can receive, a limit that varies greatly between species and even individuals: for instance, rats can hear sounds ranging from 0.25 to 80 kHz, sheep have an auditory range from 125 Hz to 40 kHz, and cattle from 25 Hz to 37kHz[761]. These factors inherently limit the attention and emergence of something important, since a cow will never find anything to focus on at 5 Hz or 55 kHz; such sounds simply do not exist for it. What has been said for sound can be applied to the other external senses as well.

For Aquinas and Fabro, the vast realm of external sense data, including unnoticed stimuli, is then united in the common sense. Fabro maintains that the common sense is the "Gestalt sense", meaning that it receives the whole sensorial

[760] See, for instance, C. CHABRIS, *The Invisible Gorilla*, Harmony, New York 2010.

[761] See BROUČEK, J., «Effect of Noise on Performance, Stress, and Behaviour of Animals», *Slovak J. Anim. Sci.* 47/2 (2014), 111–123.

world, all the colors, sounds, tastes, smells, and all things sensible, since it is responsible for forming the primary sensory synthesis of all the data received from the external senses[762]. In other words, what the common sense does is to unify all sense data received in one sensorial whole which does not include *unconscious* stimuli (i.e., those stimuli which escape all notice, perhaps because the sense organs cannot receive them) but which does include *unnoticed* stimuli (i.e., those which enter into the sensorial whole formed by the common sense but which do not merit any particular notice or attention at the moment). This seems to be in accord with Aquinas' thought, in particular as expressed in *Quodlibetal* VII, when discussing many sensible parts united in one sensed whole[763]. We might think of the "whole" as just one object, but, considering our own experience of our visual field, it is apparent that we receive a whole visible world at once; only later do we come to focus attention on a particular object, one at a time. In other words, all the sensory data gathered from the external senses is united into one sensible whole that encompasses the sensible world here-and-

[762] See FABRO, *PP*, 76: "L'organizzazione dei dati sensoriali, che i Berlinesi hanno studiati sotto il termine «Gestalt», nella psicologia aristotelico-tomista va riferita al senso comune: è il senso comune che conduce a termine il primo momento del processo percettivo, la «*Gestaltung*». La funzione del senso comune è quella per la quale è operata la sintesi sensoriale: esso *raccoglie, fonda, organizza* i dati forniti dal mondo esterno. Ma tutto questo, come si è già detto, non basta; occorre inoltre *interpretare* questi dati, ed è su questo punto che la spiegazione della scuola di Berlino viene a mancare. L'interpretare, il comprendere è stato riconosciuto da Aristotele come differente dalla funzione del senso e dalla sintesi sensoriale del senso comune: esso spetta all'intelletto, il quale non si serve propriamente dei dati forniti dai sensi esterni, bensì della sintesi sensoriale, formata e fornita dal «senso comune». In altre parole, le organizzazioni sensoriali che precedono e condizionano i processi intellettivi sono i «phantasmata» del senso comune". De Haan also refers to the common sense as the Gestalt sense with this same meaning. See D. DE HAAN, «Perception and the *Vis Cogitativa*», 88/3 (2014), in 10.5840/acpq20147323 [18-5-2023], 405-406.

[763] *Quodlib*. VII, q. 1, a. 2, ad 1: "Ad primum ergo dicendum quod similiter dicendum est de potentia sensitiva, quod non potest simul plura primo sentire, sed ex consequenti, in quantum plura accipiuntur ut unum, sicut sensibilia differentia uniuntur in una differentia, et plura sensibilia quae sunt partes uniuntur in uno toto, unde quando sentitur totum, sentiuntur simul plures partes ex consequenti, et tunc intentio sensus non fertur ad aliquam partium principaliter, sed ad totum, quia, si ad aliquam partium ferretur ut ad sensibile principale, non simul sentiretur alia. *Et iterum sensus communis, quamvis sit una potentia secundum essentiam, tamen aliquo modo multiplicatur secundum esse in quantum coniungitur diversis sensibus propriis*, sicut unum centrum coniungitur pluribus lineis; unde immutationes omnium sensuum simul terminantur ad sensum communem, sicut motus qui esset per omnes lineas posset simul terminari ad centrum". Emphasis added.

now, a *Gestalt* as it were, in the common sense. For this reason, it can be said that it is the common sense that is at least partially responsible for making an object "appear"[764]. This is because the common sense unifies the external sense data without which there are no objects.

However, while decisive, the common sense is not sufficient for perception: "What is most important in the perceptual process is not Gestalt, as the structure and organization of sensory elements, but rather a new factor, the *meaning* that Gestalt comes to have for the subject, and by which alone it can 'emerge' from the background"[765]. For Fabro, what enables the object to fully emerge is the *meaning* or *intentio*, which comes through the function of both the estimative or cogitative power and the memory[766]. The first power incorporates experience with objects and the

[764] See FABRO, *Phenomenology of Perception*, 351: "In the last determination of Wertheimer's School, by 'Gestalt' is understood the characteristic manner of 'appearing' of objects in perception: 'Gestalt' is what above all imposes itself in perception, and it is that which constitutes the central moment, the nucleus of content of the phenomenal appearance".

[765] FABRO, *PP*, 75: "Ciò che nel processo percettivo è più importante, non è la Gestalt, come struttura ed organizzazione di elementi sensoriali, ma è un fattore nuovo, il *significato* che la Gestalt viene ad avere per il soggetto, e per il quale soltanto essa può «emergere» rispetto al fondo".

[766] See FABRO, *PP*, 164: "Il Gemelli e la sua Scuola, come prima il Michotte, distinguono nei contenuti di percezione «forma» e «significato»: il momento più importante è dato non dalla forma, ma piuttosto dall'incorporazione del significato che la mente opera, per suo conto, nei complessi sensoriali. E va bene. Ma come può la mente incorporare un contenuto intelligibile nei complessi sensoriali? Non soltanto perché sono «Gestalten», ma perché già mostrano in sé realizzato in concreto quel significato che la mente ha appreso in astratto: così nell'oggettivazione non c'è passaggio equivoco fra generi diversi, ma continuità e mutua solidarietà fra *modi* di uno stesso genere di contenuti. La funzione del «senso comune» abbisogna perciò di essere integrata con quella della cogitativa". Likewise, see FABRO, *PP*, 159: "La «intentio» in generale significa il modo di essere che hanno gli oggetti in quanto sono conosciuti, e sotto questo aspetto anche la «forma» appartiene all'ordine intenzionale: si dice anzi «intenzionale» anche il modo di essere che ha il sensibile nel mezzo-ambiente, com'è stato detto. La «intentio» in senso gnoseologico rigoroso sta per il significato concreto che hanno gli oggetti per l'animale e per l'uomo, ed allora si riferisce strettamente ai soli contenuti della cogitativa o distinctiva (ed estimativa) e della memoria, cioè del quarto e quinto ordine. Alla cogitativa appartiene pertanto un proprio oggetto, che va distinto tanto da quello dei sensi inferiori, come da quello dell'intelletto. Evidentemente il contenuto originale che ha l'«intentio» per rispetto alla «forma», suppone una nuova organizzazione che l'elaborazione interiore impone ai dati «formali». L'organizzazione di cui si parla non consiste nell'ordinamento spazio-temporale soltanto, *ma nella collocazione di un fatto, di un oggetto, di una persona nell'ambiente proprio che ad essi compete di altri fatti, oggetti, persone*..., dalla

various relations, and the second recalls stored intentions[767]. Speaking of these intentions grasped by the cogitative power, De Haan prefers to use the term "percept" since intention has many different meanings in Aquinas[768]. Following Aquinas, he then divides percepts into three categories: *aspectual* ("particular intentions that target, register, identify, and connote individual things, substances, and their features", such as "*this* surface, man, tree, apple, as stable, sitting, swaying, rolling"), *actional* ("Behavioral intentions that specify a spectrum of active and passive operational affordances available to the animal vis-à-vis things and events in the world as they are aspectually perceived", such as "*this* stable surface is walk-on-able"), and *affectional* ("Catalytic intentions that register the aspectual-cum-actional perception of an operational orientation to a thing as something to be performed; an impulse to operate which activates the sensitive appetites", meaning the combination of the two prior percepts which are then classified as harmful or helpful, etc.)[769].

In general, what seems to emerge from these considerations is that attention consists of a number of "top-down" factors that come from the internal senses and, in humans, the intellect and will, as well as "bottom-up" factors from the environment itself. This division neatly corresponds to that given by contemporary neuroscience. As Yantis summarizes:

> One [category of factors that influence how perceptual selection is achieved] is bottom-up, involuntary, and stimulus-driven and depends on physical salience—a property most often associated with contrast within one or more feature dimensions. Objects

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quale collocazione essi traggono l'interesse pratico che *hic et nunc* hanno per il soggetto il quale fa questo esame comparativo o «collatio». È questa la organizzazione secondaria".

[767] See FABRO, *PP*, 184: "Questa partecipazione, se affetta tutta la sensibilità umana, si rivela in modo più vistoso nella *cogitativa*; onde è assai più notevole il divario fra la *cogitativa* umana e l'*aestimativa* animale, di quanto non lo siano le altre facoltà sensoriali. Tecnicamente si direbbe che l'uomo e gli animali hanno le stesse «formae» nel conoscere, non le stesse «intentiones». Dal punto di vista funzionale la differenza sta nel fatto che l'animale apprende *immediatamente* le «intentiones» che confanno alla sua vita: l'uomo invece deve acquistarle con le ripetute esperienze di raffronto della cogitativa, come si dirà più avanti".

[768] See DE HAAN, «Perception and the *Vis Cogitativa*», 409.

[769] DE HAAN, «Perception and the *Vis Cogitativa*», 411. De Haan asserts that this division is in keeping which what Aquinas says: "Aquinas does, in fact, describe the activity of the cogitative power as apprehensive, judicative, and discursive, see *In VI Ethic* 9 (Marietti, n. 1255); *SCG* II.60; 73": DE HAAN, «Perception and the *Vis Cogitativa*», 417, n. 44.

> that are uniquely colored or that have unique motions express high contrast in those dimensions, and this permits them to compete more effectively with stimuli whose features are similar to those of other stimuli (Beck & Kastner, 2005). Itti and Koch (2000) proposed a model of stimulus-driven capture of attention that focuses on the role of local feature contrast in guiding attention. The second kind of influence on selection is voluntary (often called top-down) and depends on the organism's behavioral goals[770].

On the one hand, there are factors from the stimuli themselves that can capture or call our attention. Yantis calls this "physical salience": things that differ from the norm or that stand out are more likely to be the focus of our attention. We could say that this is the property of those objects that "jump" or "leap" out at us[771]. A consequence of this can perhaps be observed in the Von Restorff or isolation effect, wherein phenomena that differ from the norm are more likely to be remembered. For instance, when presented with a list of vehicles with the word "house" randomly inserted, subjects are far more likely to remember "house" than any of the other words on the list[772]. "House" jumps out, captures the attention of the subject, and hence remains more easily and longer in the memory. In contrary fashion, by reducing the salient features a sensation of uniformity is created; for example, it is well-known that the Rockettes all appear to be the same height, but in fact the dancers range from 5' 6" to 5' 10.5". The differences are masked, however, because they are carefully ordered with the tallest dancers in the center and the shortest ones on the edges, thus reducing the "physical salience" as to be hardly noticeable[773].

In his book *Cognitive Psychology*, the Thomist, Thomas Verner Moore, refers to something akin to "physical salience" as he mentions the strength of stimulus. Moore notes that a stimulus must be sufficiently strong as to register a response, with a lower

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[770] S. YANTIS, «The Neural Basis of Selective Attention», *Curr Dir Psychol Sci* 17/2 (2008), in 10.1111/j.1467-8721.2008.00554.x [19-5-2023], 86-87.

[771] Indeed, etymologically *salience* comes from the Latin *saliens*, leaping or bounding.

[772] This is precisely the example used by M. FABIANI – E. DONCHIN, «Encoding processes and memory organization: A model of the von Restorff effect.», *Journal of Experimental Psychology: Learning, Memory, and Cognition* 21/1 (1995), in 10.1037/0278-7393.21.1.224 [31-5-2023], 224–240.

[773] See «10 Fun Facts About The Radio City Rockettes | New York Theatre Guide», 2022, *New York Theatre Guide*, in https://www.newyorktheatreguide.com/theatre-news/news/fun-facts-about-the-radio-city-rockettes [31-5-2023].

threshold for "very pleasant and very unpleasant sensory stimuli"[774]. We could extend salience beyond just visual novelty; a salient stimulus could also be a sudden loud sound, a sharp pain, or pleasant touch of silk, all of which can leap out at us, directing our attention to them. In these cases, the stimulus is salient in that it jumps out at the subject precisely because it stands out from the whole of sensations.

Moore also refers to factors Yantis considers as "top-down": affective determinants (such as emotional states), and, in humans, the will (a person can pay attention to something that holds "no emotional appeal and in spite of other interests and distractions in the environment")[775]. As these top-down factors differ greatly between non-rational animals and humans, we can now turn to consider how objects emerge in animal perception, particularly in the top-down factors.

The emergence of "something important" in animals

When considering how attention and the emergence of something important takes place in animals, it is worth noting that animals do not seem to get distracted as humans can. Hence, when Gibson writes that economical perception "is the ability to avoid distraction - to concentrate on one thing at a time in the face of everything going on in the environment", he must be speaking of humans, as the context indicates[776]. Experience shows that even newborn and young animals instinctually recognize danger, food, and more. It does not seem that they get distracted, since they must live attuned to their present situation, constantly seeking their survival. Distraction is a luxury an animal cannot afford, since it would likely be fatal. Indeed, as authors such as Gehlen note, animals live in very specific environments, adapted to very specific resources and particular predators. This notion of *Umwelt* fits well with Gibson's notion of specific affordances offered to a species or a particular animal and to which they are adapted and suited, and is also in accord with Aquinas' thought mentioned

[774] See MOORE, *Cognitive Psychology*: 237-244, the chapter entitled «Concept of Synthetic Sense».

[775] See MOORE, *Cognitive Psychology*: 237-244, the chapter entitled «Concept of Synthetic Sense».

[776] GIBSON, *The Senses Considered as Perceptual Systems*, 286.

earlier regarding affordances, namely, "other individual things which have no relation to its own actions or passions [the animal] does not apprehend at all by natural instinct"[777]. In other words, what calls the attention of an animal in the environment, what it perceives, is based on affordances and instinct as well as the needs of the animal. Returning to Fabro's *intentio* or De Haan's percepts, it seems that animals do not grasp *aspectual* percepts, because, per Aquinas:

> Instinct is not aware of an individual thing as in a common nature, but only in so far as this individual thing is the term or principle of some action or passion. *Thus a sheep knows this particular lamb, not as this lamb, but simply as something to be suckled*; and it knows this grass just in so far as this grass is its food[778].

Rather, animals grasp only *actional* and *affectional* percepts: the possibilities for action and passion and potential harm or help[779]. This touches on one of the critiques raised earlier against Turvey's dispositional view of affordances: it could not account for multiple affordances that present themselves simultaneously to a perceiver. Turvey contends that affordances should always be actualized or realized, but Stoffregen contends that in the animal world this simply is not the case. A relational view of affordances allows the subjective needs and states of the perceiver to influence which of these affordances are actualized, and which are left alone. Which of these affordances are in fact actualized would seem to depend on instinct, and, more specifically, a hierarchy of instinctual needs linked with the animal's current state designed to maximize the chances of survival of the species. For instance, a squirrel engaged in eating because it is hungry will nevertheless cease that activity if it becomes aware of a nearby predator. This hierarchy, as envisioned and researched by Abraham Maslow and Harry Harlow among others, remains a controversial paradigm when applied to humans but has been verified in non-human animals such as monkeys[780].

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[777] DA bk. 2, lect. 13, n. 398.

[778] DA bk. 2, lect. 13, n. 398.

[779] Fabro says as much; see FABRO, *PP*, 184: "Dal punto di vista funzionale la differenza sta nel fatto che l'animale apprende *immediatamente* le «intentiones» che confanno alla sua vita".

[780] See, for instance, the psychological classics H. F. HARLOW, «The nature of love.», *American Psychologist* 13/12 (1958), in 10.1037/h0047884 [19-3-2023], 673–685, and H. F. HARLOW – R. O. DODSWORTH – M. K. HARLOW «Total social isolation in monkeys.», *Proc.*

In other words, what an irrational animal focuses its attention on is based on the considerations of the stimulus as mentioned earlier (novelty, sudden, painful or pleasant, etc.), but also, and integrally, according to the animal's current needs organized in a hierarchy and according to the affordances offered by said objects, affordances that it can recognize through instinct, that is, the estimative power[781]. In other words, what makes an object appear for an animal, and what causes its attention to be focused on it, is essentially the work of the estimative power.

The emergence of "something important" in humans

Man's distinctive mark is, in Gehlen's words, "world-openness" (*Weltoffenheit*); lacking a specific *Umwelt*, man is exposed to an overwhelming number of stimuli that call for his attention. Gehlen's theory is that since humans lack natural defenses and specialized instincts, they in turn seek *relief* from the deluge of stimulations and threats by abstracting from the here-and-now[782]. With so many objects calling for man's attention, what makes an object emerge from the mass of sensations? How does man decide what to focus on, and what to ignore?

Attention is a much more complex phenomenon in humans than it is in irrational animals. Again, we have the factors that are "bottom-up" such as salience. Yet, whereas the sole "top-down" criterion for lower animal attention is action and passion regulated by instinct mixed with the animal's subjective state, humans have many more "top-down" factors than lower animals. As Moore notes, these include

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Natl. Acad. Sci. U.S.A. 54/1 (1965), in 10.1073/pnas.54.1.90 [19-3-2023], 90–97, as well as A. MASLOW, *Motivation and Personality*, Harper & Row, New York 1954. For contemporary perspectives regarding humans, see D. T. KENRICK – V. GRISKEVICIUS – S. L. NEUBERG – M. SCHALLER, «Renovating the Pyramid of Needs», *Perspect Psychol Sci* 5/3 (2010), in 10.1177/1745691610369469 [19-3-2023], 292–314.

[781] Integrally, meaning that novelty or suddenness alone is not enough for an animal to notice an object. The object is noticed insofar as it is perceived as affording something: e.g., it is not the suddenness of the noise that catches the animal's attention, but rather that it affords danger. A person in a bright orange clown suit might catch a human's attention, but it will be ignored by an animal unless the animal perceives that it is a threat.

[782] See A. GEHLEN, *Man: His Nature and Place in the World*. Columbus University Press 1988: 24-25.

affective determinants (such as emotional states), and the will (a person can pay attention to something that holds "no emotional appeal and in spite of other interests and distractions in the environment")[783].

To consider what brings about attention in humans, it is important to recall, first, that the cogitative power can grasp the full range of percepts: *aspectual*, *actional*, and *affectional*. Hence, as Fabro argues against Rignano, it is not mere utility or usefulness that drives attention in humans[784]. Indeed, it is the cogitative power's ability to grasp the aspectual percept, that is, to understand the singular *qua* singular, in its "real concreteness", that marks a significant difference between animal and human perception and also attention[785].

On the one hand, this extends the range of objects to which attention can be directed. As was mentioned earlier, in animals objects are noticed and emerge only in accord with affordances and potential harm or help. In humans, objects can emerge simply as *this* thing: for instance, a human can direct their attention to *this* stable brick in the wall or *that* stable fragment of glass in a stained-glass window. An animal is incapable of this, unless such a singular object offers something according to its instinctual behavior. In a sense, the human *Weltoffenheit* comes to the fore in that perceptions are not bound to the limits of merely instinctive assessments but can take on new aspects and relations[786]. Here we see that the will can direct the senses to focus on one particular object, even if it is of no interest (e.g., a smudge of dirt on the floor). The fact that the will commands the faculties to focus makes what is of *no* interest become something *of* interest. This Moore indicates well by stating the will can direct attention to something that holds "no emotional appeal and in spite of other interests

[783] See MOORE, *Cognitive Psychology*: 237-244, the chapter entitled "Concept of Synthetic Sense".

[784] See FABRO, «PPS», 8-19.

[785] See FABRO, «PISM», 440-442: "The noblest part of human sensitivity, the 'cogitative', which, through the union and participation it has in reason, can grasp the singular both according to the 'intentio singularitatis' and according to the 'intentio substantialitatis', and this formally insofar as it is *human* sensitivity, and not as pure sensitivity. Man therefore grasps the singulars in their real concreteness with the cogitative power".

[786] The case of animal learning will be considered in a subsequent section.

and distractions in the environment"[787]. Indeed, attention can even be entirely directed inwardly, to the imagination, as happens in daydreaming. In this, the will directs the attention to the inventions of an interior faculty, a phantasm that is not immediately derived from reality, and the real sensible whole passes *unnoticed*, often until a salient stimulus breaks the repose (such as a teacher's sudden shout).

On the other hand, we also see the importance of *aspectual* percepts in the case of memory. Memory stores intentions as something of the past; clearly, animals store such intentions in light of the two aforementioned percepts, whereas human can store them according to the singularity of the thing. This is clearly seen in the Proust effect and the great influence that smells and tastes have to call our attention as they pull us back in time to stored intentions[788]. Certainly an animal could recall a food that made it sick, but only humans could recall a smell as "the tobacco that my grandfather used to smoke in his pipe" or a taste as "the freshly-baked vanilla cookies my mother made from scratch". This, too, would explain some of the salience of odors and tastes which immediately grab our attention.

Among the factors Moore mentions that affect attention are affective determinants such as emotional states. How do emotions and other affectual states (such as hunger) affect attention? Ultimately, this must be through the cogitative power, which considers the percepts. Since humans are not bound by instincts, the relations

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[787] See MOORE, *Cognitive Psychology*: 237-244, the chapter entitled "Concept of Synthetic Sense".

[788] Apparently the name derives from Marcel Proust's novel, *Swann's Way*, recounting: "And suddenly the memory returns. The taste was that of the little crumb of madeleine which on Sunday mornings at Combray … when I went to say good day to her in her bedroom, my aunt Léonie used to give me, dipping it first in her own cup or real or of lime-flower tea. The sight of the little madeleine had recalled nothing to my mind before I tasted it": (M. PROUST, *Remembrance of Things Past: Swann's Way*, The Modern Library, Inc., New York 1956, 57). See also KHAMSI, R., «Unpicking the link between smell and memories», *Nature* 606/7915 (2022), in 10.1038/d41586-022-01626-x [31-5-2023], S2–S4; M. GALLO, «Insights on consciousness from taste memory research», *Behav Brain Sci* 39 (2016), in 10.1017/S0140525X15002083 [31-5-2023]; L. NÚÑEZ-JARAMILLO – L. RAMÍREZ-LUGO – W. HERRERA-MORALES – M. I. MIRANDA, «Taste memory formation: Latest advances and challenges», *Behavioural Brain Research* 207/2 (2010), in 10.1016/j.bbr.2009.10.040 [31-5-2023], 232–248.

that exist between subject and object are highly malleable based on the subject's dispositions. For instance, a person who normally takes no interest in coffee but suffered a long sleepless night might see coffee as affording alertness, and notices or pays attention to the freshly brewed pot whereas otherwise it would be ignored. Likewise, as is well known, hungry children have difficulty focusing in school; their affectual state impedes them from directing their attention to their studies because the benefit offered by studying is overwhelmed by the present evil of hunger which produces discomfort and calls for attention. Similar observations can be made regarding emotional states such as anger and love, and presumably here the imagination plays a role in exaggerating or diminishing certain aspects of the phantasm, which can taint the cogitative's assessment of an object: an otherwise innocent email or text message becomes the bearer of sinister implications and hidden sarcasm[789]. Likewise, the teenager who feels an attraction for his classmate comes to focus his attention on her constantly because the emotive state affects the cogitative's assessment of the value of the person.

A final consideration is how the cogitative affects attention via training and experience. Learning will be discussed in a further section, but a person can also be trained to pay attention to things that would otherwise pass unnoticed. For instance, the work of a building inspector or of a hunter require attention to details that others ignore. This training comes through the cogitative, which can associate a certain sort of crack or the presence of a certain mold with danger, or the presence of a certain smell or movement with the presence of an animal suitable for hunting.

Conclusion: Attention and the cogitative power

Attention is a complex phenomenon, but it lies at the heart of perception. There are many factors, both "bottom-up" and "top-down". "Bottom-up" factors include the salient features that can cause an object to jump into focus for the animal. Among "top-

[789] Indeed, the imagination can even fill in information. See V. S. RAMACHANDRAN, «Filling in Gaps in Perception: Part II. Scotomas and Phantom Limbs», *Curr Dir Psychol Sci* 2/2 (1993), in 10.1111/1467-8721.ep10770702 [31-5-2023], 56–65.

down" factors, primacy of place lies with the estimative and cogitative powers which are the "faculties of attention" as they are responsible for making objects appear from the entirety of the sensible world. In animals, objects appear solely based on their *actional* and *affectional* percepts, since these are what the estimative power grasps, while in humans the *aspectual*, *actional*, and *affectional* can all be grasped, and the will also exerts control over where attention is placed. Here, too, the advantages of the relational view of affordances with respect to the dispositional view can be seen. Since the factors that affect attention are not simply "bottom-up", or objective environmental features, but rather also "top-down", meaning dependent on the subject, their present needs and states, the relational view of affordances is better able to incorporate these aspects that are clearly of great importance.

Indirect perception and language

In the discussion regarding perception, brief mention was made of the possibility of indirect perception, an ability present in all social animals. According to Reed, for Gibson indirect perception is the process wherein "someone [or some animal] selects and displays that information [regarding affordances] in one or another form of representation, using pictures, language, and so on"[790]. Reed contends that representations can be broadly defined as "depictions, indications, signals, and symbols," and can involve gestures, vocalizations, and scents, among other things. Research shows that for non-human animals, these representations are genetically determined; for instance, warning cries of vervets or honeybee pheromones are biologically static and hence not subject to modification or further interpretation, as will be seen[791]. In her book, *The First Word: The Search for the Origins of Language*, Christine Kenneally reports that scientists consider the "ability to pair signals with meaning" as an evolutionary feat common to primates and humans, yet only humans

[790] E. REED, *James J. Gibson and the psychology of perception*, New Haven 1988, 307.
[791] See C. KENNEALLY, *The First Word*, Penguin 2007[E-book version], 220-231.

are capable of "generating new signals. Dogs, for example, aren't able to invent new barks"[792].

Signals, signs, and representations

Gehlen says something similar: regarding animals, he notes that "Even among animals, there exists the 'primal phenomenal' (*urphaenomenal*) ability of intention, which cannot be further reduced. This is an active self-orientation by means of a perceived signal toward a 'whole' that is manifested therein"[793]. This *intention* would seem to be what Gibson intends by affordance, although Gehlen uses the term *signal* rather than the broader *representation* to indicate how social animals can indicate the 'whole' (for instance, of danger or impending harm) present in a stimulus (for instance, a predator).

Perhaps in Thomistic terminology, a still better term for *signal* would be *sign*, since the signals of which Gibson and Gehlen speak recalls something other than the stimulus itself, and many of these relations are established by nature with the animals unable to change their meaning[794]. In effect, Gehlen's signal or Thomas' sign is the placeholder of the stimulus itself, and the animal responds to it as it would to the immediate presence of stimulus: there is a direct, immutable, and immediate correlation, as seen, for instance, with the diverse sorts of warning cries within a single species. In other words, in the perception of the warning cry, what is afforded is the danger that the perception of the danger itself would afford. This is seen, for instance, in vervet monkeys: one sort of alarm cry refers to the danger of an eagle, and, as a response, the other monkeys who indirectly perceive the danger run to take shelter under trees. A different cry refers to snake danger, and consequently the other monkeys climb up into the trees. Yet another cry refers to leopard danger, and the monkeys climb into the trees, but only onto narrow branches that would not support the weight of a

[792] KENNEALLY, *The First Word*, 285.
[793] GEHLEN, *Man,* 39.
[794] See AUGUSTINE, *De Doctrina Christiana Libri Quatuor*, II, 1, PL 34, 35-37: "Signum est enim res, praeter speciem quam ingerit sensibus, aliud aliquid ex se faciens in cogitationem venire".

leopard. Again, these cries are generally genetically determined, since animals will produce them even when raised in isolation[795]. Hence, such cries are signs that make present the danger itself. It seems that Aquinas might agree with this assessment as well, as he writes in the Commentary on the *Perihermeneias*: "Nor can sounds signifying naturally but not from purpose [*ex proposito*] or in connection with a mental image of signifying something—such as the sounds of brute animals—be called interpretations, for one who interprets intends to explain something"[796]. Aquinas indicates that animal sounds are naturally signifying, but not according to the speaker's purpose or with reference to a mental image. Rather, these sounds are precisely what Kenneally understands: a sign established by nature that requires no interpretation but is rather immediately understood[797].

Symbols and human communication

While signals or signs are common to lower animals, Gehlen reserves the word *symbol* for human communications: "*Symbols*, on the other hand, are essentially formed through communicative interaction. The symbols of the infinitely open world in which man exists were created in the course of his interaction with his surroundings"[798]. This restriction of language, properly speaking, to humans is also found in Aquinas, as is the notion that these symbols derive from man's interaction with the environment[799]. It is the use of symbols that enable man to find relief from the

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[795] See KENNEALLY, *The First Word*, 225.

[796] *Expositio libri Peryermeneias*, Prooemium: "Similiter etiam voces significantes naturaliter, non ex proposito aut cum imaginatione aliquid significandi, sicut sunt voces brutorum animalium, interpretationes dici non possunt".

[797] See also *On Interpretation*, bk. 4, lect. 1, n. 41: "The third part is the second difference, i.e., by convention, namely, according to human institution deriving from the will of man. This differentiates names from vocal sounds signifying naturally, such as the groans of the sick and the vocal sounds of brute animals". Likewise, "such animals signify proper passions by some kind of non-vocal sound which signifies naturally" (*On Interpretation*, bk. 4, lect. 1, n. 46); however, "such animals" here refers to animals without lungs, and hence the explanation is of limited utility for our study.

[798] GEHLEN, *Man*, 39.

[799] See, for instance, *Sententia libri Politicorum*, bk. 1, lect. 1, n. 28-39: "Videmus enim quod cum quaedam alia animalia habeant vocem, solus homo supra alia animalia habeat loquutionem. Nam etsi quaedam animalia loquutionem humanam proferant, non tamen proprie

burden of all the sensory phenomena that bombard him in his environment; by means of them, man can focus on specific elements in his environment, a burden that other animals do not have as their perceptive systems and instincts limit them to specific phenomena. In Gibson, there are passages that seem open to dialogue with this consideration: for instance, in *The Senses Considered as Perceptual Systems*, he writes:

> The relation of a perceptual stimulus to its causal source in the environment is of one sort; the relation of a symbol to its referent is of a different sort. The former depends on the laws of physics and biology, that is, on the ecology of stimulation. The latter depends on a *linguistic community*, which is a unique invention of the human species. The relation of perceptual stimuli to their sources is an intrinsic relation such as one of projection, but the relation of symbols to their referents is an extrinsic one of social agreement…. The language code is cultural, traditional, and arbitrary; the connection between stimuli and their sources is not…. The information in the latter case is coded; in the former case it cannot properly be called that. The pickup of sounds, including speech sounds, is a one-stage perceptual process. The apprehension of things referred to, however, is a two-stage process, since it involves both the discrimination of the vocal articulations and the learning of what they stand for[800].

Later, Gibson also indicates that in humans "mediated apprehension [indirect perception] gets combined and fused with direct apprehension [direct perception]"[801]. More specifically, Gibson notes that:

> Perceiving helps talking, and talking fixes the gains of perceiving. It is true that the adult who talks to a child can educate his attention to certain differences instead of

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loquuntur, quia non intelligunt quid dicunt, sed ex usu quodam tales voces proferunt. Est autem differentia inter sermonem et simplicem vocem. Nam vox est signum tristitiae et delectationis, et per consequens aliarum passionum, ut irae et timoris, quae omnes ordinantur ad delectationem et tristitiam, ut in secundo Ethicorum dicitur. Et ideo vox datur aliis animalibus, quorum natura usque ad hoc pervenit, quod sentiant suas delectationes et tristitias, et haec sibiinvicem significent per aliquas naturales voces, sicut leo per rugitum, et canis per latratum, loco quorum nos habemus interiectiones. Sed loquutio humana significat quid est utile et quid nocivum. Ex quo sequitur quod significet iustum et iniustum. Consistit enim iustitia et iniustitia ex hoc quod aliqui adaequentur vel non aequentur in rebus utilibus et nocivis. Et ideo loquutio est propria hominibus; quia hoc est proprium eis in comparatione ad alia animalia, quod habeant cognitionem boni et mali, ita et iniusti, et aliorum huiusmodi, quae sermone significari possunt. Cum ergo homini datus sit sermo a natura, et sermo ordinetur ad hoc, quod homines sibiinvicem communicent in utili et nocivo, iusto et iniusto, et aliis huiusmodi".

[800] GIBSON, *The Senses Considered,* 91. Further on, Gibson notes: "If this position is correct, animals are not capable of symbolic speech and do not have a language. They communicate, of course, and the remarkable social signals of bees and porpoises which have recently been discovered deserve our admiration".

[801] See REED, *James J. Gibson and the psychology of perception*, 307; the text is in quotations and the context seems to be an article by Gibson, but the reference is unclear.

> others. It is true that when a child talks to himself he may enhance the tuning of his perception to certain differences rather than others. The range of possible discriminations is unlimited. Selection is inevitable…. [The] observer can always observe more properties than he can describe[802].

There is an associative aspect in language use: "Every child must learn the code of his social group"[803]. Gibson admits that "language substitutes words for things," but maintains what is most important is information pickup and not the rote learning of words: "Words are *not* simply auditory stimuli or vocal responses. They embody stimulus information, especially invariant information about the regularities of the environment. They consolidate the growing ability of the child to detect and abstract the invariants"[804].

Gibson sees the traditional behaviorist view of language as follows: the repetition and reinforcement of a stimulus (an actual, physical dog) associated with a subsequent response (the child saying, "Dog!") and reward from adults, is what causes language development. However, in his ecological view, language does much more:

> Hence, the learning of language by the child is not simply the associative naming or labeling of impressions from the world. It is also, and more importantly, an expression of the distinctions, abstractions, and recognitions that the child is coming to achieve in perceiving. Insofar as a code is a set of associations, the terms of the code have to be learned by association. But a language is more than a set of associations and the learning of language is therefore more than learning by association[805].

In other words, what language does for the child is helps them to express stimulus information, that is, affordances.

In general, J. J. Gibson's view seems to fit non-human animals well; it seems that the majority of "language" in non-human animals is related to affordances, that is, to informing other members of the group regarding potential dangers and potential beneficial objects. It also explains some aspects of human communication: for instance, Gehlen and Aquinas both insist that language arises from man's interaction with the environment; words, as it were, are a material sign of the intentions that we gather from

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[802] GIBSON, *The Senses Considered*, 282.
[803] GIBSON, *The Senses Considered*, 281.
[804] GIBSON, *The Senses Considered*, 281.
[805] GIBSON, *The Senses Considered*, 281.

the world[806]. However, it seems unlikely that human language can simply be reduced to the communication of affordances. For instance, it is difficult to see how riddles, puns, and poetry could be said to express affordances; there seems to be yet another level of abstraction at work. In general, human language seems capable of a level of abstraction that is simply unattainable in other animals and which transcends the limits which Gibson intends to impose on it. It is true that human language is in a sense natural: not in that a person speaks Igbo as opposed to Yiddish, or that the relation of sign or symbol between object and word is necessarily from nature. Rather, it seems that language usage is ubiquitous and hence part of man's nature: "No mute tribe has ever been discovered, and there is no record that a region has served as a 'cradle' of language from which it spread to previously languageless groups"[807].

Hence, the development of language usage is intimately tied to perception, both direct and indirect. In that sense, when Gibson speaks of the language code as "arbitrary", it seems he would be in agreement with the observations of Aristotle and Aquinas, namely, that we often name objects from our point of view, either as what they offer or afford us (for instance, "*lapis* (stone) which is derived from its effect, *laedere pedem* (to bruise the foot)"), or from some resemblance in nature (for instance, as in Mandarin, the names of animals that resemble the sounds they make or prominent features)[808].

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[806] See, for instance, SCG IV, 11, and ST I, q. 85, a. 2, ad 3. Aquinas contends that from the impression made on the senses, there arises the phantasm which is illuminated by the intellect. The result is that the "passive intellect thus informed forms a definition, or a division, or a composition, expressed by a word" (ST I, q. 85, a. 2, ad 3). The "'intention understood' [is] what the intellect conceives in itself of the thing understood. To be sure, in us this is neither the thing which is understood … but it is a certain likeness of the thing understood conceived in the intellect, and which the exterior words signify. So, the intention itself is named the 'interior word' which is signified by the exterior word" (SCG IV, 11). For a thoughtful analysis of how human thought is essentially linguistic, see R. PASNAU, «Aquinas on Thought's Linguistic Nature», 80/4 (1997), in 10.5840/monist199780426 [11-5-2023], 558–575.

[807] S. PINKER, *Language Instinct*, Penguin UK 2003, 26.

[808] See *De Veritate*, q. 4, a. 1, ad 8, as well as *Commentary on Aristotle's Physics*, lect. 1.

Gibson, Gehlen, and Aquinas: differences in abstraction

Yet, there are also important differences between Gibson, Gehlen, and Aquinas: differences that seem to indicate considerations that Gibson's thought cannot explain. Gehlen admits that distinguishing features of humans include the almost complete lack of instincts as well as the ability to "abstract" from the here-and-now of life in order to focus on the future, and so it seems that abstraction from the present moment is an important part in language use and development. For Aquinas, there is certainly a sort of abstraction that takes place as the intellect abstracts or pulls the universal from a singular object. This *verbum mentis* or concept is then expressed via written or spoken words, which are themselves conventional or customary signs; hence, the *use* of language requires that a person be inserted into a particular culture and community (as Gehlen also maintains). However, the reverse process, i.e., the application of those words to the single object, involves the cogitative power, since, as the particular reason, it must apply the universal to single instantiations. However, this application is not always done perfectly. For instance, overgeneralization ("when a child uses the wrong word to name an object"[809] or when the child applies a rule incorrectly, such as rendering the plural form of "foot" as "foots") is a common phenomenon in child language development, as are incorrect applications of categories. For instance, a child will sometimes apply erroneous criteria to phenomena: for instance, a child might assume that every person wearing a hat is a "bad person"[810]. Not only is this seemingly an error in judgment (since the intellect in itself does not err regarding abstraction, but what can err is the content associated with that universal since, as we have seen, in children the imagination produces faulty or confused phantasms), it also raises the question of how, if Gibson admits that some affordances must be learned, how he accounts for that learning, or, more importantly, for the learning, unlearning, and

[809] L. GERSHKOFF-STOWE – B. CONNELL – L. SMITH «Priming overgeneralizations in two- and four-year-old children», *J. Child Lang.* 33/3 (2006), in 10.1017/s0305000906007562 [31-10-2022], 461–486.

[810] This was the case of one of my younger brothers, who loudly proclaimed this fact in the face of a large, muscular man with a hat.

relearning of mistaken categories. Gibson might say the person becomes more attuned to the invariants, and hence more rapidly distinguishes "mother" from "woman who is not mother," but the error does not seem to be one of recognition, but rather of labeling. What distinguishes the right application of the word "mother" from an incorrect usage is not simply a sensory data issue (infants can recognize their mothers), but rather an abstract concept that is being applied to a concrete reality. Such an ability seems to posit the need for a faculty of abstraction, as well as a sort of reason that can apply that universal or abstract concept to the concrete case at hand.

Likewise, without an element of abstraction, it is hard to see how certain words can acquire meanings that are unrelated or unconnected with their semantic content, that is, how they truly become polyvalent *symbols* that can refer to many different things. For instance, the English "blue" refers literally to a color, but also refers to a depressive emotional state (as in, "I'm feeling blue). Likewise, the French "*la vie en rose*" refers to a sort of positive outlook and happiness that is intrinsically unrelated to the color pink. Furthermore, while these color words exist across cultures, their emotional connotations do not. The understanding of society in general and of culture in particular was left largely unexplored by Gibson. In his book *Explorations in Ecological Psychology* and other articles, Roger G. Barker studied the construction of behavior settings, "dynamic, relatively stable, time-limited ecological entities"[811]. Unfortunately, after Barker, ecological interest in such macro-environmental settings seems to have waned[812].

These comments are not to insist that Gibson is entirely wrong on his views regarding language and movement. In *Metaphors We Live By*, the authors analyze the different phrases and verbs we use in English that represent "spatialization metaphors", that is, they reflect movement and the orientation of the body in space[813]. However, by

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[811] R. BARKER., *Ecological Psychology*, Stanford University Press, Stanford 1968. Citation from PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action».

[812] In PERCEIVINGACTING, «Harry Heft - The Ecological Approach To Perception & Action», Heft remarks that "no one is doing this work anymore".

[813] See, for instance, G. LAKOFF – M. JOHNSON, *Metaphors We Live By*, University of Chicago Press, Chicago 1980, 17.

insisting on the unification in the one step of perception of knowing both the object and what it affords, there seems to be no room for man to remove himself from immediate reality to enter the world of future concerns and theoretical pursuits. The authentic use of language requires a level of abstraction that Gibson's theory is unable to provide; he is stuck, as it were, in the first level, the level of signaling that we share with other animals, and cannot move in the realm of abstract signs or symbols. On the one hand, as his intellectual commitments bind him to a materialist view of the world, and as an experimental scientist he is concerned with what can be proven by experimentation, there is no room for consideration of an immaterial faculty such as the intellect that can abstract.

Learning

The final notion to be considered, related to language and yet distinct from it, is that of learning. A logical conclusion of Gibson's direct perception is that there should be little need for learning or training in order to detect affordances[814]. Indeed, this appears to be the conclusion of Gibson himself, although not without difficulties. In the early *The Senses Considered as Perceptual Systems*, Gibson notes that "in general learning is all-important for this kind of perception [of affordances]. The child learns what things are manipulable and how they can be manipulated, what things are hurtful, what things are edible, what things can be put together with other things or put inside other things - and so on without limit"[815]. However, in the later *The Ecological Approach to Vision*, the importance of learning is seemingly attenuated: "Nevertheless, however true all this may be, the basic affordances of the environment are perceivable and are usually perceivable directly, without an excessive amount of learning"[816].

A distinction that might be of help, and which might explain the seeming contradiction, can be found in that little training or learning is required seems to be more apt for the lower animals as opposed to the higher ones, and, in particular, for

[814] Cf. GIBSON, *The Ecological Approach to Visual Perception*, 143.
[815] GIBSON, *The Senses Considered as Perceptual Systems*, 285.
[816] GIBSON, *The Ecological Approach to Visual Perception*, 143.

humans. In lower animals, distinctions between what is harmful and what is helpful are naturally found within the instincts of a creature. Again, this relies on the notion of affordances as related to the *sensibile per accidens* in the Thomistic vision. As such, animals instinctually recognize the harm or good of a particular object, whereas humans must learn and acquire that knowledge. If animals naturally grasp affordances, then this must be related somehow to the Gibsonian equivalent of instinct. If we define instinct as "a largely inheritable and unalterable tendency of an organism to make a complex and specific response to environmental stimuli without involving reason,"[817] then for Gibson, when an animal perceives an affordance, sometimes there is also a behavior that automatically follows the perception. The whole process of perception for Gibson includes this "awareness of value," since Gibsonian perception includes both the object and its meaning or value. Whereas many biologists would say that instinct is an innate "appraisal" of the good or harm offered by an object which then automatically elicits a behavioral response, for Gibson perception includes this appraisal.

Learning in lower animals

The question then arises of how Gibson would explain the classical models of conditioning vis-à-vis Skinner. Regarding these, Gibson maintains that it is not precisely that the subject learns *by* association, but rather learns *of* the association between the stimulus and the response. Gibson considers this simply as an expansion of the notion of information pickup: Skinner's rat, which has been trained to press a lever to receive food, needed to explore to pick up the new information and the affordance[818]. This pickup follows from exploration of the environment. If we return to the discussion regarding attention, it would seem that, for whatever reason, perhaps novelty, the object comes to the attention of the animal. It may be, as will be discussed

[817] *Merriam-Webster*. (n.d.). Instinct. In Merriam-Webster.com dictionary. Retrieved October 31, 2022, from https://www.merriam-webster.com/dictionary/instinct

[818] GIBSON, *The Senses Considered as Perceptual Systems*, 272-3.

later, a case of insight, but it is more likely the animal is somehow interested in it or is encouraged to pay attention to it (such as the ringing bell during meal times).

While Aquinas seldom mentions the training of animals, there are occasional mentions that are broadly in agreement with the Skinnerian vision. An important division can be found in the *Commentary on the Metaphysics*, Bk. 1, lectio 1, wherein Aquinas divides animals into three classes based on their possession of memory and hearing, and hence of the ability to be prudent and to be trained:

> It is evident, then, that there are three levels of knowing in animals. The first level is that had by animals that have neither hearing nor memory, which are therefore neither capable of being taught nor of being prudent. The second level is that of animals that have memory but are unable to hear, which are therefore prudent but incapable of being taught. The third level is that of animals that have both of these faculties, and which are therefore prudent and capable of being taught. Moreover, there cannot be a fourth level, so that there would be an animal that had hearing but lacked memory. For those senses that perceive their sensible objects by means of an external medium—and hearing is one of these—are found only in animals that have locomotion and which cannot do without memory, as has been pointed out.

It is clear that for Aquinas, hearing is a requisite faculty for an animal to be able to be trained. How this training takes place is a different question, and one that Aquinas addresses, for instance, in ST I-II, q. 50, a. 3, ad 2, discussing whether there are habits in the sensitive parts. There, Thomas notes:

> The sensitive powers of dumb animals do not act at the command of reason; but if they are left to themselves, such animals act from natural instinct: and so in them there are no habits ordained to operations. There are in them, however, certain dispositions in relation to nature, as health and beauty. But whereas by man's reason brutes are disposed by a sort of custom to do things in this or that way, so in this sense, to a certain extent, we can admit the existence of habits in dumb animals: wherefore Augustine says (QQ. lxxxiii, qu. 36): *We find the most untamed beasts, deterred by fear of pain, from that wherein they took the keenest pleasure; and when this has become a custom in them, we say that they are tame and gentle.* But the habit is incomplete, as to the use of the will, for they have not that power of using or of refraining, which seems to belong to the notion of habit: and therefore, properly speaking, there can be no habits in them.

How animals are disposed to behave in a certain way Aquinas explains more clearly in both the *Commentary on the Politics* and *De Veritate*, q. 24, a. 7, ad 2, the

latter discussing whether or not brute animals can make free choices[819]. In the *De Veritate* text, the more comprehensive of the two, he notes that:

> Both men and brutes are induced by favors and restrained by chastisements, or by commands and prohibitions, but in different ways. It is within the power of men when the same things are similarly represented, whether they be commands or prohibitions, favors or chastisements, to choose or refuse them by a judgment of reason. In brutes, however, there is a natural judgment so determined that whatever is proposed or met in one way is accepted or rejected in the same way. It happens, though, that from the memory of past favors or chastisements brutes apprehend something as friendly and to be pursued or hoped for, and something else as hostile and to be fled or feared. Thus after a beating they are induced by the passion of fear which arises from it to obey the wish of their instructor. Nor is it necessary that such things take place in brutes on account of freedom of choice, but on account of the indifference of their actions.

In other words, through rewards and punishments, brute animals learn, beyond what they have received from instinct, which things offer pain and which offer pleasure. The examples offered by Aquinas resemble those in the discussion regarding instinct and the incidental sensibles. Hence, it could be said that the training of brute animals involves the learning of new affordances that man has established in the animal's environment.

Lastly, it is worth noting that higher animals are also able to learn new affordances on their own. This is the phenomenon of insight, as explained in Köhler's experiment with the chimpanzees Sultan and Rana[820]. As Sultan was playing with sticks and realized that they could be connected, he "'saw' the relation between the tool and the task" and used the sticks to reach bananas[821]. Psychologists are quick to note, however, that insight differs from foresight, wherein a subject sees in advance what is needed and selects the tools or instruments in accord with the task[822].

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[819] *Commentary on the Politics*, bk. 1, lect. 3, n. 11: "Other animals remember the good and bad things that human beings have done to them, and fear or love impels them to serve those human beings. And so natural slaves and irrational animals serve human beings in different ways, natural slaves by the use of reason, and irrational animals by emotional reaction".

[820] See W. KÖHLER, *The task of Gestalt psychology*, Princeton, N.J : Princeton University Press, Princeton (N. J.) 1969, esp. 155-160.

[821] M. TOMASELLO – J. CALL, *Primate Cognition*, Oxford University Press 1997, 89.

[822] See TOMASELLO – CALL, *Primate Cognition*, 89. Some animals are extremely limited in their use of tools, as was the cases of Rana (see KÖHLER, *The task*, 155-160). Even after

Learning in humans

Gibsonian learning seems best suited to explain the process in lower animals; however, it seems lacking when it comes to explaining learning in humans. Humans are born almost without instincts, and hence almost everything regarding the external world must be learned[823]. For instance, what mushrooms afford eating, and which are harmful, is something humans must acquire through training, in which the cogitative power plays a role as it forms the *experimentum* as was noted in the first chapter[824]. Furthermore, there are many things that can be learned by humans which seem difficult to explain in terms of direct perception of affordances. For instance, think of the different considerations that must be learned in order to write a symphony. Of course, the composer must know how to write musical notation and be familiar with the ranges and sounds of the different instruments; the first might be considered a language, and the second, the "affordances" of the instruments. However, then the composer must combine the sounds in such a way as to produce a desired effect, such as to convey sadness or a triumph. While it could be said that a certain combination of tones affords sadness or a victory (although these are very vague notions), we are left with

observing Sultan manipulating objects to reach food, try though she might, Rana was unable to copy him in an effective way.

[823] There are only a few exceptions: by natural instinct, children find "nipples and other things" agreeable to them, without having been taught. See *Super Sent.*, lib. 2, d. 20, q. 2, a. 2 ad 5: "Ad quintum dicendum, quod alia animalia non prosequuntur conveniens et fugiunt nocivum per rationis deliberationem, sed per naturalem instinctum aestimativae virtutis: et talis naturalis instinctus est etiam in pueris; unde etiam mamillas accipiunt, et alia eis convenientia, etiam sine hoc quod ab aliis doceantur".

[824] See, for instance, the *Commentary on the Metaphysics*, bk. 1, lect. 1, n. 15: "In men the next thing above memory is experience, which some animals have only to a small degree. For an experience arises from the association of many singular [intentions] received in memory. And this kind of association is proper to man, and pertains to the cogitative power (also called particular reason), which associates particular intentions just as universal reason associates universal ones. Now since animals are accustomed to pursue or avoid certain things as a result of many sensations and memory, they seem to share something of experience, even though it be slight. But above experience, which belongs to particular reason, men have as their chief power a universal reason by means of which they live". It is interesting that Aquinas here appears to deny *experimentum* in animals, instead arguing that animals have simply the association of sensations (being rewarded or beaten, as we saw earlier, with some action or sensation) in the memory.

unanswered (and, for Gibson, perhaps unanswerable) questions: from where does the composer learn such things? There are some mathematical rules to music theory, such as certain chords that are dissonant, but the whole point of the creative process is to produce something that has not been done before.

Indeed, it would seem that any creative process would defy Gibson's ability to explain it: an artistic work, be it musical, visual, or performative, might afford an emotional experience to the viewer, but, even so, how the artist produces that effect is difficult to understand, precisely because he does so in a way that has never been done before.

A final note is the importance of language for learning: earlier mention was made of how language comes from the environment, but the reverse is also true. By means of language, humans are able to communicate information about the environment that would otherwise be ignored or overlooked. For instance, in teaching a child what to look for in the sky to know the future weather, the child starts to pay attention to aspects of the environment that were previously overlooked. In this way, language can shape perception, and indeed can integrate a person into a particular time and culture.

Conclusion

In this chapter, after examining the history of ecological psychology and the meaning of the school's most important terms, we have considered the possible meanings that might be attributed to the notion of affordances. With these considerations, we were able to examine how Gibson's ecological psychology clarifies or makes explicit aspects of Thomistic epistemology that are often left unconsidered, namely, the importance of movement for perception, the notion of the *sensible per accidens* as causal relations of action and passion, the origin and role of attention, indirect perception and language, and learning.

In this, we have seen clearly the importance of the cogitative power. It is responsible for grasping the affordances of objects, which are Aquinas' *sensibili per*

accidens; it is the faculty of attention which brings objects into the mind and focus; it is also responsible for the learning of affordances.

A final question remains: given the current state of neuroscience, would it be possible, based on the neural networks and brain plasticity, to say that there is simply one internal sense, a "sensibility" that encompasses all the functions of the internal senses of the Scholastics? While it is true the functions of the internal senses seem to involve many different areas of the brain, and localization of the internal senses is hence difficult, nonetheless the division of the internal senses serves as a functional division that explains the various operations of the mind as well as explaining different pathologies of perception, as Moore examines at length. As with the different levels of analysis mentioned earlier, the internal senses are a *molar* level of organization as opposed to the *molecular* level often preferred and emphasized by neuroscience.

Chapter 4

Movement and Action in Perception according to the Sensorimotor Enactivism of Alva Noë

As discussed earlier, some Thomists have seen a possible point of engagement with the various schools of enactivist cognitive science. To examine the possibility of such an engagement, we must first examine the foundations of this science, in particular its epistemological framework and anthropological assumptions, as well as the key concepts that emerge from it. With this framework, we will be in position to examine how the level of analysis found in enactivist thought can help to understand, fine-tune, or even modify Aquinas' doctrine on the nature and object of the cogitative power and the object Scholastics identified as *sensibili per accidens* as Fabro understands it.

Status quaestionis: the possibility of integration

A search of the secondary literature reveals increasing attempts to bring Aristotelian and Thomistic philosophy into an encounter with neurobiology in general and with enactivism in particular, indicating that both philosophers and scientists see such a project not simply as possible but also potentially of great use and worth the efforts at integration[825]. Three articles in particular give the framework that will inform

[825] Aside from the articles mentioned here, see: S. HORVAT, «Neuroscientific findings in the light of Aquinas' understanding of the human being», *SetF* 5/2 (2017), in 10.12775/setf.2017.021 [29-9-2023], 127-153; D. D. DE HAAN, «Hylomorphic Animalism, Emergentism, and the Challenge of the New Mechanist Philosophy of Neuroscience», *SetF* 5/2 (2017), in 10.12775/setf.2017.025 [29-9-2023], 9-38; D. D. DE HAAN, «The Interaction of Noetic and Psychosomatic Operations in a Thomist Hylomorphic Anthropology», *SetF* 6/2 (2018), in 10.12775/setf.2018.010 [29-9-2023], 55-83; M. MRÓZ, «Physiological and

our efforts in this chapter. The first is Philip Larrey's 2012 article «La percezione in Cornelio Fabro e le neuroscienze». While the article is brief (less than 10 pages of body text), Larrey's contention is that the key to reconciling contemporary neuroscientific research and Thomistic thought can be found in Fabro's theory of the cogitative power:

> By comparing Cornelio Fabro's speculation on perception and the various theories of neuroscience that explain the data provided by the scientific method, we can sketch an attempt to reconcile the philosophical perspective with the scientific perspective. In this sense, much of the data provided by neuroscience is adequately explained by the theory of the cogitative promoted by Fabro. However, not all neuroscientists agree[826].

The second and third articles are by Daniel D. De Haan. The first, «A Heuristic for Thomist Philosophical Anthropology: Integrating Commonsense, Experiential, Experimental, and Metaphysical Psychologies», provides an excellent framework and considerations for a possible integration of neuroscientific perspectives with Thomism[827]. In the second article, De Haan's «Perception and the *Vis Cogitativa*: A Thomistic Analysis of Aspectual, Actional, and Affectional Percepts», the author dedicates the final sections to Alva Noë's enactive theory of perception (pages 430-432) and to a possible "enrichment from phenomenology" (pages 432-437). Although brief, and referencing only *Action in Perception*, De Haan offers a generally positive appraisal of enactivism, as he writes:

Psychological Foundation of Virtues: Thomas Aquinas and Modern Challenges of Neurobiology», *SetF* 6/2 (2018), in 10.12775/setf.2018.019 [29-9-2023], 115-128; G. GILLETT, *From Aristotle to Cognitive Neuroscience*, Springer 2018; D. STANCIU, «Consciousness, 4E cognition and Aristotle: a few conceptual and historical aspects», *Front. Comput. Neurosci.* 17 (2023), in 10.3389/fncom.2023.1204602 [4-7-2024]; H.-J. GLOCK, «Minds, Brains, and Capacities: Situated Cognition and Neo-Aristotelianism», *Front. Psychol.* 11 (2020), in 10.3389/fpsyg.2020.566385 [4-7-2024]; J. J. SANGUINETI, *Neuroscienza e filosofia dell'uomo*, Edizioni Santa Croce, Rome 2014.

[826] P. LARREY, «La percezione in Cornelio Fabro e le neuroscienze», *Aquinas* 55/3 (2012), 350: "Mettendo a confronto la speculazione di Cornelio Fabro sulla percezione e le diverse teorie della neuroscienza che spiegano i dati forniti dal metodo scientifico, possiamo abbordare un tentativo di conciliare la prospettiva filosofica con quella scientifica. In questo senso, molti dati forniti dalla neuroscienza vengono spiegati adeguatamente dalla teoria della cognitiva [*sic*] promossa da Fabro. Ma non tutti i neuro-scienziati sono d'accordo".

[827] D. D. DE HAAN, «A Heuristic for Thomist Philosophical Anthropology: Integrating Commonsense, Experiential, Experimental, and Metaphysical Psychologies», 96/2 (2022), in 10.5840/acpq2022126248 [4-7-2024], 163–213.

> Aristotelians have always recognized the dynamic character of the sensible and perceptible world, but very little attention has been given to the complementary dynamic exploration of the sensing and perceiving animal. A Thomistic account of sensory-perception can and should appropriate a number of the central theses of the enactive theory of perception, especially its focus upon the significant ways our motile abilities are integrated into sensation and perception[828].

De Haan also suggests that a closer examination of the different classes of Aristotelian and Thomistic sensibles would help clarify the enactivist position. Both articles offer encouraging insights regarding the dialogue between neuroscience of the enactivist variety, and Thomistic philosophy, in particular through the role of the cogitative power. For this reason, our work in this chapter will attempt to synthesize both insights in a comprehensive way.

Methodological considerations

Once again, in accordance with our methodology, 1) the different criteria each discipline uses to gather its *facts* must be specified; 2) the *theoretical context* each discipline accepts in order to explain those facts must be laid out, and; 3) based on these criteria and on this context, the concepts to be used must be *clearly defined*, in order to avoid equivocation[829]. Once these concepts have been defined, it must then be determined if and how they can be subsequently *linked* or *related* to Aquinas' terminology and concepts. However, before determining these factors, a preliminary examination is required: what sort of science is sensorimotor enactivism? From here, we can then determine how it gathers its facts and what theoretical context it entails.

What sort of science is enactivism?

The exact science to which enactivism pertains has been subject to debate. It has been considered as a form of cognitive science, neuroscience, philosophy of mind,

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[828] D. D. DE HAAN, «Perception and the *Vis Cogitativa*», 88/3 (2014), in 10.5840/acpq20147323 [18-5-2023], 431. The limitation of the references to *Action in Perception*, while not overtly problematic, is surprising, given that *Varieties of Presence* (first published with Harvard University Press in 2012) addresses many of the same issues and would have been accessible.

[829] AGAZZI, «El desafío», 248-9.

and more. These varied classifications could be attributed, in part, to the development of these sciences. As scientific research and techniques advanced through the latter half of the 20th century through today, the division of the sciences tended to become more pronounced. In other words, broader fields such as biology and chemistry were subsequently subdivided into more specialized fields. This is the case of neuroscience and related fields that study the nervous system. In the past, neuroscience was generally considered a subdivision of biology; now, it is considered an interdisciplinary field that involves chemistry, medicine, engineering, and more[830]. However, the case of neuroscience is particularly complicated when compared to neurobiology, a field the American Psychological Association defines as "a branch of biology that studies the structures and processes of the nervous system"[831]. On the one hand, many claim that there is no difference between neuroscience and neurobiology, whereas still others maintain that "neurobiology looks at the biology of the nervous system, while neuroscience refers to anything to do with the nervous system"[832]. The current structuring of many universities reveals the complicated situation[833].

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[830] "Neuroscience has traditionally been classed as a subdivision of biology. These days, it is an interdisciplinary science which liaises closely with other disciplines, such as mathematics, linguistics, engineering, computer science, chemistry, philosophy, psychology, and medicine". See «About Neuroscience - Department Of Neuroscience», *Department Of Neuroscience*, in https://web.archive.org/web/20240521075824/https://neuro.georgetown.edu/about-neuroscience/ [21-5-2024].

[831] S.v. neurobiology, «APA Dictionary Of Psychology», 1970, in https://web.archive.org/web/20240521142121/https://dictionary.apa.org/neurobiology [21-5-2024].

[832] "Many researchers say that neuroscience means the same as neurobiology". See «About Neuroscience - Department Of Neuroscience», *Department Of Neuroscience*, in https://web.archive.org/web/20240521075824/https://neuro.georgetown.edu/about-neuroscience/ [21-5-2024].

[833] Consider, for instance, the divisions of these sciences as seen in the schools and faculties of various universities in North America, at the time of this writing: some universities had departments of neurobiology which have now been transformed into or replaced by departments of neuroscience: examples of this include Harvard and the University of California at Berkeley. Similarly, in 2016, the medical school at Washington University in St. Louis renamed the Department of Anatomy and Neurobiology as the Department of Neuroscience. Other universities offer studies in neurobiology within or under the auspices of biology: for instance, the University of Pennsylvania, MIT, and Boston University offer courses or specializations in neurobiology within the department of biology, whereas the University of Wisconsin at Madison offers neurobiology under Integrative Biology, and the University of

It is apparent that there are many different visions of neurobiology and how it relates to neuroscience. However, it seems innocuous to conclude the following: first, there is, at least as a pragmatic or functional consideration, a difference between neuroscience and neurobiology; second, neurobiology could justifiably be considered as a subfield of biology, as numerous sources and the very name suggest; third, neurobiology seems to focus more on macro-biological structures and the resultant functioning or behaviors of those structures (hence the frequent linking between neurobiology and physiology, psychology, and medicine) as opposed to micro-scale neurotransmitters and individual neurons. Bearing in mind these considerations, the classification that we wish to propose is that enactivism be classified as a sort of neurobiology or a neurobiological approach to perception. This claim will be justified in the subsequent sections.

Methodology of neurobiology

In the introduction, it was argued that neurobiology is both objective and quantitative: objective in that there is no subjective reporting of what is experienced or observed but rather objective, i.e., subject-independent measures, and quantitative in

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Maryland offers a specialization in physiology and neurobiology under biological sciences. Still other schools offer neuroscience studies under the heading of neurobiology: for instance, Northwestern University's Department of Neurobiology offers a concentration in neuroscience. More commonly than this are the schools that offer a neurobiology specialization under the heading or direction of the department of neuroscience. This is the case, for instance, at the University of Cincinnati, the University of Arizona, Duke University, and the University of California at San Diego. Here, there is often an emphasis on the interdisciplinary nature of neuroscience. Occasionally universities will place neurobiology under the department of psychology. This is the case of the University of Florida at Warrington, where neurobiology is presented as synonymous with "psychobiology or behavioral neuroscience" (See «Neurobiology», *Undergraduate Academics*, in https://warrington.ufl.edu/undergraduate-academics/general-studies/specializations/neurobiology/ [21-5-2024].). Several medical schools have departments of neurobiology, hence placing neurobiology as a sub-field of medicine: this is seen at the medical schools at the University of Utah, the University of California at Los Angeles, and the University of Maryland at Baltimore. Lastly, some universities link neurobiology with physiology: under this heading, both Purdue and North Carolina State are universities that offer concentrations in neurobiology and physiology, and integrative physiology and neurobiology, respectively.

that the results obtained should be in some way measurable or quantifiable. Yet, this affirmation needs to be explained and defended.

The experimental method in biology and in neurobiology in general

To examine the method of study in neurobiology, we must begin with examining the method of biology in general. As an empirical science, biology relies on the experimental method, whereby theories are proposed, tested, and subsequently confirmed, rejected, or modified in accord with the results of experiments and observations. It is this method that characterizes the experimental sciences in general. However, as Charles de Koninck notes, experimental biology is an exact science, yet also inadequate and imperfect because of the variability of what it measures. In his words:

> Experimental biology is an exact science. Experimental sciences can be called exact to the degree that they allow us to make predictions. It is in this sense that physics can be called the most exact of the experimental sciences. ... Experimental science is essentially metric. It can only define properties by a description of the process of measuring them. No experimental law—an algebraic relation between two number-measures—is absolutely rigorous. However, as a group, strictly physical laws are more rigorous than biological laws.... Thus one can say that the more a living being is free, the more he [it] escapes the reach of experimental science. Thus, of all the experimental sciences, experimental biology is the most inadequate and imperfect, even though it studies the highest form of natural organization[834].

The tendency to turn to mathematical models to predict behaviors in animals, such as those found in dynamical systems theories, could perhaps be seen as an attempt to introduce greater exactness into the realm of biology while also drawing it closer to physics. We will return to this point later.

In the introduction it was recalled that while mental operations themselves are not susceptible to direct observation, indications of neural activity can be observed and measured; the intensity and patterns of these operations can be correlated to first-person reports, or to behaviors from third-person observation. On the one hand, the neural sciences make particular use of functional neuroimaging with tools such as single-

[834] DE KONINCK, *The Writings of Charles De Koninck Vol. 1*, 246-247.

photon emission computed tomography (CT - measuring cerebral blood flow), magnetoencephalography (MEG - measuring small intra-cellular electrical currents which generate magnetic currents), positron emission topography (PET - measuring glucose metabolism), and functional magnetic resonance imaging (fMRI - using several different techniques to determine oxygen saturation and blood flow). Likewise, the patch clamp technique can measure the flow of ions through a single molecular channel in a cell membrane, giving an understanding of the ionic flow. Each technique comes with its advantages and limitations[835]. Such tools are the standard instruments for work in the neural sciences at the molecular or cellular level.

However, such ways of observing and measuring neural activity are not the only ones. On the one hand, as neural activity also has an influence on behavior, patterns of behavior can be examined with regard their underlying neurological basis. For instance, in their experiments regarding rats and recalling the structure of a maze, McKenzie and her team studied how learning led to a reorganization of neural structures which in turn affected future behaviors[836].

Likewise, the neural structures themselves can be analyzed on a larger scale, be that as brain structures or regions, nervous pathways, neural networks, and the like. To study these structures, lesion studies have come back to the forefront, since these studies can reveal correlations between physiological function of brain regions and cognitive functions and behaviors that are impossible to detect with imaging studies[837].

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[835] See GETZ, *Applied Biological Psychology*, 16-42. As mentioned earlier, for a clear synthesis in chart form of the different techniques compared according to spatial and temporal resolutions, see CHURCHLAND, *Brain-Wise*, 19.

[836] See S. MCKENZIE – N. T. M. ROBINSON – L. HERRERA – J. C. CHURCHILL – H. EICHENBAUM, «Learning Causes Reorganization of Neuronal Firing Patterns to Represent Related Experiences within a Hippocampal Schema», *Journal of Neuroscience* 33/25 (2013), in 10.1523/jneurosci.0879-13.2013 [7-3-2024], 10243–10256.

[837] See, for instance, A. R. VAIDYA – M. S. PUJARA – M. PETRIDES – E. A. MURRAY – L. K. FELLOWS, «Lesion Studies in Contemporary Neuroscience», *Trends in Cognitive Sciences* 23/8 (2019), in 10.1016/j.tics.2019.05.009 [21-5-2024], 653–671; J. JOUTSA – N. LIPSMAN – A. HORN – G. R. COSGROVE – M. D. FOX, «The return of the lesion for localization and therapy», 146/8 (2023), in 10.1093/brain/awad123 [21-5-2024], 3146–3155. 3147 has an excellent visual representation that traces the frequency of lesion study usage against scientific discoveries, and notes the steadily increasing frequency of the use of lesion studies from the mid-1990's until

As Edward D. Huey and Jeffrey A. Lieberman note, fMRI studies can often be overinclusive, since the scans detect all regions that are activated, but often only a small subsection of those regions are necessary for the behavior or activity. On the opposite end, fMRI studies are also often underinclusive, since they detect changes in activation. Hence, regions that are consistently active before, during, and after a task are not included in the fMRI data, although such regions might be essential to the activity[838]. As Vaidya and his team comment, "These techniques [i.e., fMRI and other imaging methods] comprise a powerful set of investigative tools but cannot differentiate between regions that are involved during some cognitive process and those that are necessary for that process. This limitation cannot be addressed by further methodological refinement"[839].

Hence, neurobiology is concerned with establishing the connection between behaviors and neurological structures, not simply in a static sense as established at a particular time or by nature, but also in a dynamic sense, examining the mutual influence that the two have on each other. While the dynamical systems approach, touted by Andy Clark among others, also examines how neural systems emerge and develop over time, this approach attempts to summarize these results and relations in terms of mathematical models and analysis[840]. While such a methodology certainly has

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the present; R. ADOLPHS, «Human Lesion Studies in the 21st Century», *Neuron* 90/6 (2016), in 10.1016/j.neuron.2016.05.014 [21-5-2024], 1151–1153.

[838] E. D. HUEY – J. A. LIEBERMAN, «From known to unknown; old to new: can lesion studies inform psychiatry about mental illness in the 21st century?», *Neuropsychiatry* 2/5 (2012), in 10.2217/npy.12.54 [21-5-2024], 369–372.

[839] A. R. VAIDYA – M. S. PUJARA – M. PETRIDES – E. A. MURRAY – L. K. FELLOWS, «Lesion Studies in Contemporary Neuroscience», *Trends in Cognitive Sciences* 23/8 (2019). The page is given as 2 in the NIH version of the publication.

[840] See, for instance: E. D. PAOLO, *Sensorimotor Life*, Oxford University Press 2017; A. CLARK, «Are we predictive engines? Perils, prospects, and the puzzle of the porous perceiver», *Behav Brain Sci* 36/3 (2013), in 10.1017/s0140525x12002440 [3-7-2024], 233–253; A. CLARK, «Radical Predictive Processing», *The Southern J of Philosophy* 53/S1 (2015), in 10.1111/sjp.12120 [3-7-2024], 3–27; A. CLARK, «Consciousness as Generative Entanglement», 116/12 (2019), in 10.5840/jphil20191161241 [3-7-2024], 645–662. An example of how systems interact and relate to each other can be found in G. COLOMBETTI, *The Feeling Body: Affective Science Meets the Enactive Mind*, MIT Press 2017, 55. Taking an example for Clark, she notes: "Two or more dynamical systems are said to be *coupled* when they reciprocally influence and constrain their behavior over time, such that they can be

its advantages, the focus on mathematical modeling and self-organizing systems tends to approach physics and mathematics, since it attempts to produce mathematical laws that can predict behaviors and responses[841]. Indeed, this returns to de Koninck's contention that biology studies with a certain degree of freedom, and the dynamical systems approach tends to overlook this point. Neurobiology, on the other hand, while also producing quantitative results, focuses particularly on the structures of the neural pathways and structures as the cause or the effect of behaviors or engagements with the environment. Hence, the laws or results of neurobiology, strictly speaking, are not expressed in mathematical or predicative models with varying levels of certainty, but rather as expressions of relationships that hold between the involved neural structures and behaviors or environmental factors.

The difference between these approaches is summarized very well by Giovanna Colombetti in her 2014 monograph, *The Feeling Body: Affective Science meets the Enactive Mind*:

> As I see it, from an enactive perspective, it is possible to regard various aspects of dynamical systems (states, attractors, trajectories, etc.) as having some kind of representational status, and this may be useful for various purposes; however, one should keep in mind that to do so is to take the system as *heteronomous* rather than autonomous (Varela 1979; Thompson 2007, 49–51), namely, as characterized by inputs and outputs, and by a transference of information from the inside to the outside (and vice versa). When applied to cognitive systems, this perspective thus obscures

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modeled as one system. The phenomenon is often illustrated with the example of wall-mounted pendulums (A. Clark 2001). If allowed to oscillate freely, two pendulums hanging on the same wall will tend to swing-synchronize as time passes, via the vibrations of the wall. The movement of one pendulum causes vibrations of a certain frequency that influence the movement of the other pendulum, and vice versa. In DST this is mathematically captured by a set of two differential equations (one for each pendulum) in which the evolution of each pendulum's behavior is factored into the equation of the other". The difficulty, as will be seen, is that the dynamical systems approach has difficulty considering autonomous systems; it can model non-living systems well, but the autonomy of the agent escapes its grasp.

[841] Indeed, the dynamical systems approach is taken precisely from physics: "The concept of dynamical systems has its origins in Newtonian mechanics, which describe how interaction between objects and forces determine the movement of objects in space. The application of this framework to neurobiology of time seeks to explain how interactions among a network of recurrently connected neurons and inputs they receive determine the evolution of patterns of neural activity in the brain": E. D. REMINGTON – S. W. EGGER – D. NARAIN – J. WANG – M. JAZAYERI, «A Dynamical Systems Perspective on Flexible Motor Timing», *Trends in Cognitive Sciences* 22/10 (2018), in 10.1016/j.tics.2018.07.010 [3-7-2024], 938.

> their autonomous character, and the related point that a cognitive system generates or enacts meaning in virtue of its organization. As Thompson (2007, 51) remarks, "For the enactive approach it is the autonomy perspective on natural cognitive agents that remains the reference point for understanding mind and life, not a predefined input-output task structure"[842].

The experimental method in the enactivist approach in particular

Enactivist publications generally show the members of the school to be well-versed with the experimental literature and research. However, as a school they are also very concerned with what *cannot* be gained by experiments that focus strictly on the neuronal level of investigation. In his book *Out of Our Heads*, Alva Noë phrases the dilemma this way:

> What features of cells in the brain enable us to see and feel and wonder? This is a trick question. If there is one thing we now know, it is that the character of human experience is not fixed by the properties of individual neurons. *The neuron is just the wrong unit of analysis*…. You can no more explain mind in terms of the cell than you can explain dance in terms of the muscle. If the character of our mental lives depends on what's going on in the brain—and it does—then we need to turn our attention away from individual neurons[843].

"The neuron is just the wrong unit of analysis": without denying the importance of the neural structures that make up the nervous system and allow for the reception of sense data (since "the character of our mental lives depends on what's going on in the brain"), Noë and enactivists like him contend that neither neurons nor the brain are the appropriate level of examination when it comes to considering consciousness and life. As Noë says in the preface to *Out of Our Heads*, describing the aim of his monograph:

> Human experience is a dance that unfolds in the world and with others. You are not your brain. We are not locked in a prison of our own ideas and sensations. The phenomemon [*sic*] of consciousness, like that of life itself, is a world-involving dynamic process. We are already at home in the environment. We are out of our heads[844].

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[842] COLOMBETTI, *The Feeling Body*, 57: emphasis in the original. The text cited by Evan Thompson is E. THOMPSON, *Mind in Life*, Harvard University Press, Cambridge 2007.

[843] A. NOË, *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness*, Hill and Wang, New York 2009, 48. Emphasis added.

[844] NOË, *Out of Our Heads*, xiii.

Shortly thereafter, Noë states that to understand "the fact that we think and feel and that a world shows up for us—we need to look at a larger system of which the brain is only one element"[845]. This larger system is "the joint operation of brain, body, and world"[846].

Hence, the level of analysis proper to enactivism, like that of ecological psychology, is at a functional level. As was the case with ecological psychology, such a level is a *macro-* or *molar analysis*, meaning that the properties or functions considered emerge within the context of a systemic whole. What that whole system is, and how and what, precisely, is analyzed, will be addressed within the theoretical context of enactivism.

Several researchers have raised the contention that if enactivists reject the notion that neurons and the brain are where perception takes place, and instead argue for a broader view of perception that includes the world and the body, it becomes very difficult to quantitatively and empirically test and verify their claims[847]. However, when approached from a neurobiological perspective, these challenges are not fatal; rather, the neurobiological perspective allows for the various aspects of biological systems to be studied in a manner that is fitting for an empirical science, namely, through quantified and measurable variables. One such approach is to study the various mechanisms by means of which the different sensorimotor skills are embodied within the greater nervous system. It is these *macroscopic* structures that change and develop from interaction with the environment. Such an approach will necessarily require some study of neural plasticity, that is, the modifications over time of single neurons, groups of neurons, or even large groups. We will examine this in more detail when we discuss the divisions in the enactivist school itself.

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[845] NOË, *Out of Our Heads*, 10.
[846] NOË, *Out of Our Heads*, 10.
[847] See, for instance, the argumentation and proposal of M.-O. CASPER - G. F. ARTESE, «A Methodological Response to the Motley Crew Argument: Explaining Cognitive Phenomena Through Enactivism and Ethology», (2023), in 10.1007/978-3-031-30304-3_3 [21-2-2024], 27–48.

Theoretical context of enactivism

Next, we must consider the *theoretical context* of enactivist neuroscience, that is, the foundations of enactivism in the form of the underlying philosophical and psychological principles, so that this background can be considered and borne in mind for the integration that we propose, namely, into a Thomistic *Weltanschauung*. However, two essential distinctions must be made: first, while this section considers the *theoretical* foundations, there are also *practical* or *scientific* branches of these schools. These theoretical schools provide the background and underlying philosophical assumptions, whereas the practical schools are more concerned with integrating scientific data. A second distinction is to be made between the various schools of enactivist thought: it should be noted that these are only "semi-distinct" or "distinct but overlapping", sharing several propositions but emphasizing different aspects[848]. The three branches to be studied are *autopoietic enactivism*, *sensorimotor enactivism*, and *radical enactivism*: we will begin our examination with the common tenets of enactivism and then examine the different perspectives of each school.

Enactivism – common foundations

The enactivist movement claims as its original manifesto the 1991 book by Francisco Varela, Evan Thompson, and Eleanor Rosch: *The Embodied Mind: Cognitive Science and Human Experience*. Although the general approach was

[848] See, for instance, D. WARD – D. SILVERMAN – M. VILLALOBOS, «Introduction: The Varieties of Enactivism», *Topoi* 36/3 (2017), in 10.1007/s11245-017-9484-6 [5-10-2023], 365: "A consequence of this is the apparent existence of a variety of distinct but overlapping 'enactivisms', the relations between which are not always clear". Likewise, in the same article: "Since *TEM*'s publication there have been at least three semi-distinct currents of enactivist theorizing" (369). These three currents are the ones we propose for examination. This article appears to be the first to attempt to isolate the various currents, and given its contemporary appearance (2017) it is clear that the divisions between the schools continue to change. Likewise, there are some historical aspects that seem unaddressed or grossly simplified in their presentation, and not everyone agrees with the analysis offered here. E.g., in J. DEGENAAR – J. K. O'REGAN, «Sensorimotor Theory and Enactivism», *Topoi* 36/3 (2017), in 10.1007/s11245-015-9338-z [17-10-2023], 397, autopoietic and sensorimotor enactivism as described as "two mutually exclusive kinds of enactivism".

developed in previous works of Humberto R. Maturana with Varela in the 1970's and 1980's, *The Embodied Mind* presents enactivism as "a fairly cohesive research programme … [which] posits a fundamental linkage between biological organization and cognitive processes"[849], essentially, between the body and thought.

In this regard, in *The Embodied Mind* two separate but related terms frequently appear: *embodiment* and *enactivism*. In his introduction, reflecting on the developments in cognitive science since the publication of the first edition of *The Embodied Mind* and the revised 2016 edition, Evan Thompson offers the following reflection on the relation between the two terms[850]:

> Since the publication of this book, the enactive approach has usually been understood as a particular version of the embodied cognition paradigm in cognitive science. According to this paradigm, the body plays a constitutive role in cognition, that is, cognition depends directly on the body as a functional whole and not just the brain. The enactive approach adds a number of specific ideas about the body and cognition; many researchers have extensively developed these ideas in the past two decades[851].

Embodied cognition, then, refers to the broad view that the whole body, and not simply the brain and nervous system, is responsible for cognition. This notion is enough to distinguish embodied schools from cognitivist ones, but within the ranks of embodied systems of thought there are many other divisions; it suffices to think of how broad the

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[849] R. MEYER – N. BRANCAZIO, «Putting down the revolt: Enactivism as a philosophy of nature», *Front. Psychol.* 13 (2022), in 10.3389/fpsyg.2022.948733 [5-10-2023], 1. Note, however, that Meyer and Brancazio trace the roots of this movement only to the 1980 book H. MATURANA – F. VARELA, *Autopoiesis and Cognition: The Realization of the Living*, D. Reidel Publishing Company, Dordrecht, Holland 1980, as they note: "The theory of enactivism, developed from the work of Maturana and Varela (1980)" (1). However, *Autopoiesis and Cognition* is simply the English translation of the 1972 *De Maquinas y seres vivos: una teoría sobre la organización biológica*, Universitaria, Santiago, Chile 1972, and hence the roots go at least a decade earlier back than Meyer and Brancazio realize. Furthermore, Maturana's introduction mentions his research papers from the late 1960's, for instance, "a very fundamental result that we published in a very unknown article" in 1968 (xv).

[850] However, it should be noted that the original text itself has not been changed: as Jon Kabat-Zinn indicates in the forward to the revised edition, "The reissuing of *The Embodied Mind* now, in this new edition, after almost twenty-five years, with new introductions by the surviving authors and *with the original text unchanged*…." (F. J. VARELA – E. THOMPSON – E. ROSCH, *Embodied Mind, Revised Edition*, MIT Press, Cambridge 2016, xiii. Emphasis added).

[851] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xxvi. The text is found in Evan Thompson's introduction to the revised edition.

terms "whole body" and "cognition" are, and the innumerable ways they could be related[852]. Enactivism falls under this broad heading of embodiment schools, but with its own specific nuances. It is worth noting as well that the embodied schools also take their origin from *The Embodied Mind*[853].

In turn, *enactivism* and *enactivist* were neologisms offered in *The Embodied Mind* to explain how the actions of the subject or perceiver enacts, that is, brings forth, both meaning and the world: "We propose as a name the term *enactive* to emphasize the growing conviction that cognition is not the representation of a pregiven world by a pregiven mind but is rather the enactment of a world and a mind on the basis of a history of the variety of actions that a being in the world performs"[854]. "The basic idea of the enactive approach," writes Thompson, "is that the living body is a self-producing and self-maintaining system that enacts or brings forth relevance, and that cognitive processes belong to the relational domain of the living body coupled to its environment"[855]. Indeed, perhaps "coupled" does not convey the strength of the union, as Eleanor Rosch notes in her introduction: "Whereas most embodiment research focuses on the interaction between body and mind, body and environment, or environment and mind, *enaction sees the lived body as a single system that encompasses all three*"[856]. Mind, body, and environment form a dynamic whole, since "cognition and world are interdependently originated via the living body," concludes

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[852] See, for instance, A. NEWEN – L. DE BRUIN – S. GALLAGHER (edd.), *The Oxford Handbook of 4E Cognition*, Oxford University Press, Oxford 2018, 6: "It should be emphasized that proponents of 4E cognition differ greatly in terms of their commitments to these claims, and consequently in their interpretation of what it means for cognition to be embodied, embedded, extended, and enactive".

[853] "Within embodied cognition, Varela, Thompson, and Rosch's *The Embodied Mind* (1991) is often regarded as an *urtext*": L. SHAPIRO, *Embodied Cognition* 2nd edition, Routledge 2019: 59.

[854] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 9.

[855] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xxv. The text is found in Evan Thompson's introduction to the revised edition.

[856] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xlviii. The text is found in Eleanor Rosch's introduction to the revised edition. Emphasis added.

Thompson[857]. From here it is clear why enactivism would reject a purely neuronal focus; to emphasize simply the biological or neurological component is to be bound to the wrong level of analysis, since the world, action, and cognitive activity arise through a dynamic interaction, and not simply as the result of neurotransmitters and nerve signals. Nevertheless, enactivism also recognizes the importance of the neural basis for perception, precisely because perception is *embodied*.

What gives rise to this unity of mind, body, and environment? This unity, and particularly what "variety of actions" are responsible for the emergence of meaning, can partially be explained by the enactivist understanding of *embodied action*:

> By using the term *embodied* we mean to highlight two points: first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context. By using the term *action* we mean to emphasize once again that sensory and motor processes, perception and action, are fundamentally inseparable in lived cognition. Indeed, the two are not merely contingently linked in individuals; they have also evolved together[858].

Here the origin of the unity between the different elements becomes more salient: the body has certain sensorimotor capacities with which to engage the world, and it is by means of these capacities that the perceiver can attain the experiences and information from the surrounding world necessary for thought to take place. It could be said that the world is shaped by the perceiver's abilities to take it in; on the same token, however, those capabilities are not found isolated, but rather encompassed or embedded within a particular biological, psychological, and cultural world[859]. As Ezequiel di Paolo, Thomas Buhrmann, and Xabier Barandiaran have indicated,

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[857] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xxvi. The text is found in Evan Thompson's introduction to the revised edition.

[858] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 173.

[859] An example of this cultural embedding could perhaps be found in the values assigned to objects. For instance, Native Americans used *wampum* for currency, which of itself had no value for the Europeans. On the contrary, "After Megapolensis [Johannes Megapolensis, a Dutch Reformed missionary] presented a Rix dollar to a chief, the Indian laughed at Christians, whom he considered foolish for valuing little pieces of iron. The chief sneered that he would throw such coins in the river". M. E. SNODGRASS, *Coins and Currency*, McFarland, Jefferson, NC 2019, 333.

following Thompson and Varela, there are three *dimensions of embodiment*, or cycles of operation, that can be distinguished in the lives of higher primates: 1) a regulation of the entire body; 2) sensorimotor coupling between organism and environment, and 3) intersubjective interaction[860]. The first might be considered as the *autopoietic* dimension, the second, the *sensorimotor* facet, and the third the *intersubjective* or *communitarian* aspect.

However, this embedded engagement with the world is not simply passive reception; rather, it is an active task of the perceiver who directs and guides engagement with the world as the authors of *The Embodied Mind* indicate:

> The point of departure for the enactive approach is the study of how the perceiver can guide his actions in his local situation. Since these local situations constantly change as a result of the perceiver's activity, the reference point for understanding perception is no longer a pregiven, perceiver-independent world but rather the sensorimotor structure of the perceiver (the way in which the nervous system links sensory and motor surfaces). This structure—the manner in which the perceiver is embodied—rather than some pregiven world determines how the perceiver can act and be modulated by environmental events[861].

The perceiver's actions affect the environment they perceive, as does their innate embeddedness with its structures, behaviors, and cultures. The result is a dynamic union of body, environment, and thought in which all parts affect the others. With this established, it is much easier to understand what the authors mean in their summary of *enaction*: "We can now give a preliminary formulation of what we mean by *enaction*. In a nutshell, the enactive approach consists of two points: (1) perception consists in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided"[862]. Particularly this second point enables us to examine "cognitive structures" such as neural networks.

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[860] DI PAOLO, *Sensorimotor Life*, 5.
[861] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 173.
[862] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 173.

Enactivism – intellectual ancestors and inspirations

From whence did this movement, which began with *The Embodied Mind*, emerge? We can indicate three potential sources in the text itself: ecological psychology, the philosophy of Merleau-Ponty, and Buddhism.

In *The Embodied Mind*, the authors make surprisingly little reference to Gibson's ecological psychology. It might be assumed that the two schools are closely connected or related, but this perhaps stems more from apparent similarities, since both reject a reduction of models that reduce perception and thought simply to brain activity and representations[863]. The authors of *The Embodied Mind* indicate two features that distinguish Gibson's project of ecological psychology: one the authors find compatible with their own vision, and the other incompatible. The first, the compatible one, concerns how the world is described:

> Gibson claims that in the study of perception the world must be described in a way that shows how it constitutes environments for perceiving animals. In Gibson's view, certain properties are found in the environment that are not found in the physical world per se. The most significant properties consist in what the environment affords for the animal, which Gibson calls *affordances*. Stated in precise terms, affordances consist in

[863] This seems to be indicated by H. HEFT, «Ecological Psychology and Enaction Theory: Divergent Groundings», *Front. Psychol.* 11 (2020), in 10.3389/fpsyg.2020.00991 [18-10-2023], 23-24: "The ecological approach to perception and enaction theory are distinctive among perceptual theories for advocating a theoretical approach that rejects an appeal to mental representations or post-perceptual processes to account for experience of the environment. Furthermore, both approaches assume that an adequate account of psychological processes other than perceiving, such as thinking, remembering, and communicating symbolically, requires as a first-step a satisfactory account of perceiving. For this reason, both agree that 'getting one's account of perceiving right' from the outset matters a great deal for psychological theory broadly considered.

Because both ecological psychology and enaction theory attempt to establish a framework for a non-representational approach to psychological theory, and because presently both are in a minority position with respect to the field of perceptual psychology overall, it might seem as if a joining of forces as it were – or at least a partial synthesis – would make for a stronger joint alternative to the representational theories that have dominated psychology and the philosophy of mind for so long". Indeed, in his introduction to the revised edition, Evan Thompson describes the project of *Embodied Mind*: "In this way, we juxtaposed three traditions—cognitive science, Western phenomenology, and Buddhism—and we used Buddhist philosophy and psychology to enrich phenomenology in ways that could also advance cognitive science" VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xxi.

> the opportunities for interaction that things in the environment possess relative to the sensorimotor capacities of the animal[864].

Previously we have seen that this understanding of affordances as strictly environmental properties is a common interpretation but perhaps not what Gibson in fact intended with the notion. This is a key claim, because the second notion, and the authors' opposition to it, flows from this analysis.

The second, supposedly incompatible notion concerns *how* the information is perceived. As was seen earlier, Gibson emphasizes the importance of the detection of invariants in the environment which results in direct perception of affordances. The problem that the authors of *The Embodied Mind* find with this stems from their understanding that invariances and affordances are strictly environmental properties, and hence Gibsonian "perceptually guided action" is very limited: "In Gibson's view, however, perceptually guided action consists in 'picking up' or 'attending to' invariances in the ambient light that directly specify their environmental source. For Gibson, these optical invariances, as well as the environmental properties they specify, do not depend in any way upon the perceptually guided activity of the animal"[865].

The authors summarize their differences with Gibson's ecological project in these terms: "In a nutshell, then, whereas Gibson claims that the environment is independent, we claim that it is enacted (by histories of coupling). Whereas Gibson claims that perception is direct detection, we claim that it is sensorimotor enactment"[866]. Hence, the unity of mind, body, and environment touted by enactivists seems incompatible with their interpretation of Gibson's affordances. As was indicated, that interpretation is one of several, and perhaps a different notion of affordances would be more suitable to the enactivist project. It is on this basis that research continues to examine the possibility of a fruitful collaboration between the two sciences; however, it seems that, at least from the outset, the two were opposed in

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[864] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 203.
[865] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 203.
[866] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 203-204.

serious ways, at least based on the understanding of Gibson's work which informs *The Embodied Mind*[867].

The second intellectual ancestor of enactivism is Merleau-Ponty's philosophy. In the original introduction to *The Embodied Mind*, the authors make the influence of Merleau-Ponty explicit:

> We like to consider our journey in this book as a modern continuation of a program of research founded over a generation ago by the French philosopher, Maurice Merleau-Ponty. By *continuation* we do not mean a scholarly consideration of Merleau-Ponty's thought in the context of contemporary cognitive science. We mean, rather, that Merleau-Ponty's writings have both inspired and guided our orientation here[868].

What is this inspiration and guidance found in Merleau-Ponty? The authors indicate several points: the continuation of Heidegger's Being-in-the-World (*in-der-Welt-sein*) that unites "subject, object, consciousness, and world", a particular vision of the body as a dual-faceted embodiment, and the emergence of the world as the result of the subject's action within it[869]. Despite this wide-ranging influence of Merleau-Ponty

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[867] For these collaborations, see the excellent book (a collection of articles published in *Frontiers in Psychology*): DI PAOLO, E. A. - HERAS-ESCRIBANO, M. - CHEMERO, A. - MCGANN, M. (edd.), *Enaction and Ecological Psychology: Convergences and Complementarities*, Frontiers Media SA, Lausanne 2021.

[868] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, lxi.

[869] See VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xxxix: "At this point we have gone beyond phenomenology. Yes, this is a controversial claim given Heidegger's account of Being-in-the-World (*in-der-Welt-sein*) where there is no split between subject, object, consciousness, and world, followed by Merleau-Ponty's psychology that extends this foundational idea". Likewise, VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, lxi-lxii: "We hold with Merleau-Ponty that Western scientific culture requires that we see our bodies both as physical structures and as lived, experiential structures—in short, as both "outer" and "inner," biological and phenomenological. These two sides of embodiment are obviously not opposed. Instead, we continuously circulate back and forth between them. Merleau-Ponty recognized that we cannot understand this circulation without a detailed investigation of its fundamental axis, namely, the embodiment of knowledge, cognition, and experience. For Merleau-Ponty, as for us, embodiment has this double sense: it encompasses both the body as a lived, experiential structure and the body as the context or milieu of cognitive mechanisms". Likewise, "It is the organism itself—according to the proper nature of its receptors, the thresholds of its nerve centers and the movements of the organs— which chooses the stimuli in the physical world to which it will be sensitive. "The environment (*Umwelt*) emerges from the world through the actualization or the being of the organism—[granted that] an organism can exist only if it succeeds in finding in the world an adequate environment": VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 174. The whole text is from Merleau-Ponty, *The Structure of Behavior*, 13.

throughout the text, Western phenomenology in general is criticized for its abstract and theoretical nature; it is only in enactivism that the authors find these insights made concrete[870].

The third intellectual ancestor is that of Buddhism. In the introduction to the revised edition, Eleanor Rosch notes that the impetus for turning to Buddhism was "because, in our judgment, it provided what both Western psychology and phenomenology lacked, a disciplined and non-manipulative method of allowing the mind to know itself—a method that we (in retrospect naively) simply called mindfulness"[871]. However, as Rosch notes, the use of Buddhism is more complicated and problematic than it seems, as the version of Buddhism which Varela and Thompson prefer tends to a radical monism[872].

Hence, enactivism, at least as it was originally conceived, was of a monist metaphysics (since all reality is one) and an idealist or subjectivist epistemology (since "phenomena do not inherently exist"). While these foundations are inadequate, at least from the perspective of the Thomistic *Weltanschauung* that we wish to embrace, it should be noted that this does not automatically disqualify the legitimate advances and

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[870] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 19: "Indeed, this criticism would hold even for Heidegger's existential phenomenology, as well as for Merleau-Ponty's phenomenology of lived experience. Both stressed the pragmatic, embodied context of human experience, but in a purely theoretical way". In all fairness, it must be noted that in his introduction to the revised edition, Evan Thompson remarks: "I no longer accept three of the rhetorical and argumentative strategies on which we relied. The first strategy is our portrayal of Western phenomenology, in the tradition of Husserl, Heidegger, and Merleau-Ponty, as a failed or broken down philosophical project": VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xxii.

[871] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, xli. However, it is worth noting that Thompson, while retaining his enactivism, has become increasingly critical of Buddhism: see E. THOMPSON, *Why I Am Not a Buddhist*, Yale University Press 2020 (the title is clearly a nod to B. RUSSELL, *Why I am not a Christian*, Simon and Schuster, New York 1967).

[872] See the citation of Tibetan Buddhist commentators in VARELA - THOMPSON - ROSCH, *Embodied Mind*, 225: "Through ascertaining the reason—that all phenomena are dependent arisings—the extreme of annihilation (nihilism) is avoided, and realization of dependent-arising of causes and effects is gained. Through ascertaining the thesis—that all phenomena do not inherently exist—the extreme of permanence (absolutism) is avoided, and realization of the emptiness of all phenomena is gained".

findings of enactivists. Nonetheless, it does require attention be paid to conclusions that, either implicitly or explicitly, rely on these flawed foundations and could hence be tainted or prejudiced towards or away from other points of view or perspectives. With this essence of enactivism established, we can turn to determining the differences between the three branches we aim to examine. Each branch retains fidelity to these fundamental characteristics, but with different emphases on aspects of the theory.

Models of enactivism – Varela and Thompson in the autopoietic school

Scholars have noted that the term "autopoiesis" never appears in *The Embodied Mind*, and hence to label a strand of enactivist thinking as "autopoietic" seems imperfect or inaccurate[873]. Nevertheless, it is worth recalling that the concept plays a central role in Maturana and Varela's 1980 *Autopoiesis and Cognition*; like *enactivism*, the term *autopoiesis* itself is a neologism. As the duo struggled to express in clear terms their thesis, namely, that "cognition and the operation of the living system … were the same thing", the phrase they had used, "circular organization", lacked the formality needed to discuss the topic clearly. Then, as Maturana recalls:

> One day, while talking with a friend (José Bulnes) about an essay of his on Don Quixote de la Mancha, in which he analyzed Don Quixote's dilemma of whether to follow the path of arms (*praxis*, action) or the path of letters (*poiesis*, creation, production), and his eventual choice of the path of *praxis* deferring any attempt at *poiesis*, I understood for the first time the power of the word 'poiesis' and invented the word that we needed: *autopoiesis*. This was a word without a history, a word that could directly mean what takes place in the dynamics of the autonomy proper to living systems[874].

[873] See WARD – SILVERMAN – VILLALOBOS, «Introduction: The Varieties of Enactivism», 369: "Perhaps surprisingly, the term 'autopoeisis' is not mentioned in *TEM*". On the same page, n. 9: "Given the fact that *TEM* emphasises autonomous rather than autopoietic organisation, 'Autopoietic enactivism' is perhaps an imperfect term for this branch of enactivist theory. Nonetheless, labelling forms of enactivism that emphasise biodynamics in this way has become commonplace". Such a critique is perhaps forced. Maturana writes that the term *autopoietic* is meant to emphasize precisely this autonomy. As he writes, explaining the origin of the neologistic *autopoietic*: "We wanted a word that would by itself convey the central feature of the organization of the living, which is autonomy … a word that could directly mean what takes place in the dynamics of the autonomy proper to living systems" See MATURANA – VARELA, *Autopoiesis and Cognition*, xvii (the introduction is the sole responsibility of Maturana).

[874] MATURANA – VARELA, *Autopoiesis and Cognition*, xvii.

This self-production or self-creation refers to the way in which dynamic systems, because of their internal organization and their attempts to maintain homeostasis, cause or create the states which enable them to maintain that homeostasis[875]. For this reason, the theory of autopoiesis or self-organizing systems has been called "a theory of minimal living organization"[876]. Recalling that cognition and the operations of the living system are equivalent, as Maturana maintains, the focus of this school naturally becomes the fleshing out of the mechanisms whereby cognition becomes an emergent property of these dynamic systems[877]. Prominent proponents of the autopoietic school of enactivism include *Embodied Mind* authors Francisco Varela and Evan Thompson, as well as Ezequiel Di Paolo and others more recently[878].

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[875] See H. MATURANA, «The Organization of the Living: A Theory of the Living Organization», International Journal of Human-Computer Studies 51/2 (1999), in 10.1006/ijhc.1974.0304 [16-10-2023], 149–168, particularly 153-154 for an explanation of autopoietic systems. The language is dense and opaque, e.g., 154: "As a result of their organization, autopoietic systems operate as homeostatic systems that have their own organization as the critical fundamental variable that they actively maintain constant. In an autopoietic system all its (dynamic) states are states in autopoiesis and lead to autopoiesis. In this sense, autopoietic systems are closed systems". Earlier, Maturana notes that "an autopoietic system that exists in physical space is a living system".

[876] E. A. DI PAOLO, «Autopoiesis, Adaptivity, Teleology, Agency», *Phenom Cogn Sci* 4/4 (2005), in 10.1007/s11097-005-9002-y [16-10-2023], 429.

[877] See WARD – SILVERMAN – VILLALOBOS, «Introduction: The Varieties of Enactivism», 369: "The 'autopoietic' strand of enactivist theorising emphasises and develops this attempt to ground cognition in the biodynamics of living systems". See also 370: "Autopoietic enactivism, then, takes up the general project outlined in TEM and pursues it with a particular emphasis on the way in which cognitive structures emerge from interactive dynamics".

[878] WARD – SILVERMAN – VILLALOBOS, «Introduction: The Varieties of Enactivism» give as examples of this autopoietic school F. J. VARELA, «Patterns of Life: Intertwining Identity and Cognition», *Brain and Cognition* 34/1 (1997), in 10.1006/brcg.1997.0907 [17-10-2023], 72–87; A. WEBER – F. J. VARELA, «Life after Kant: Natural purposes and the autopoietic foundations of biological individuality», *Phenomenology and the Cognitive Sciences* 1 (2002), 97–125; E. A. DI PAOLO, «Autopoiesis, Adaptivity, Teleology, Agency»; E. THOMPSON, *Mind in Life*, Harvard University Press, Cambridge 2007. More recently, see F. HEYLIGHEN – E. BUSSENIERS, «Modeling autopoiesis and cognition with reaction networks», *Biosystems* 230 (2023), in 10.1016/j.biosystems.2023.104937 [17-10-2023], 104937; F. BIANCHINI, «Autopoiesis of the artificial: from systems to cognition», *Biosystems* 230 (2023), in 10.1016/j.biosystems.2023.104936 [17-10-2023], 104936; M. D. KIRCHHOFF, «Autopoiesis, free energy, and the life–mind continuity thesis», *Synthese* 195/6 (2018), in 10.1007/s11229-016-1100-6 [17-10-2023], 2519–2540; R. D. BEER, «An Investigation into the Origin of Autopoiesis», *Artificial Life* 26/1 (2020), in 10.1162/artl_a_00307 [17-10-2023], 5–22.

Models of enactivism – O'Regan and Noë in the sensorimotor school

Whereas the autopoietic branch of enactivism focuses attention on the emergence of cognition from living and dynamic systems, a second branch centers on a different aspect of enactivism as outlined in *The Embodied Mind*. In the seminal work of enactivism it was maintained that "the point of departure for the enactive approach is the study of how the perceiver can guide his actions in his local situation", and hence the "reference point for understanding perception is no longer a pregiven, perceiver-independent world but rather the sensorimotor structure of the perceiver"[879]. As the name of this school implies, the sensorimotor branch of enactivism focuses precisely on how these structures are responsible for what is perceived in both its "intentional and phenomenal characteristics", that is, in its "content and character"[880].

It has been argued that in general the sensorimotor school's focus on sensorimotor contingencies (that is, the patterns of interplay between the world that is perceived, the body with its sensory systems and brain, and movement) results in less importance given to other elements of the enactivist project at large, such as the emergence of consciousness and the body-mind-world unity[881]. While this claim is generally sound, it is worth noting that even within this branch there is a great deal of disagreement regarding what sensorimotor structures are and how they interface with the world and experience[882].

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[879] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 173.

[880] WARD – SILVERMAN – VILLALOBOS, «Introduction: The Varieties of Enactivism», 370 and 371. Perhaps "content and character" could be understood as be considered as *intentio* and *forma* in the Thomistic sense. This, and how dynamic organic (neurobiological) structures affect both the *intentio* and the *forma* of perception, will be seen later in the chapter.

[881] See WARD – SILVERMAN – VILLALOBOS, «Introduction: The Varieties of Enactivism»: 370-372, especially 371: "Sensorimotor enactivism largely ignores or downplays the other theoretical principles associated with enactivism, such as the co-production of organism and environment, emphases on biodynamics and a commitment to life/mind continuity".

[882] For an overview, see WARD – SILVERMAN – VILLALOBOS, «Introduction: The Varieties of Enactivism»: 370-372.

Key figures within the sensorimotor school include John Kevin (typically J. Kevin in the literature) O'Regan and Susan Hurley (†2007, at the age of 52)[883]. Of particular note and importance for our study is Alva Noë. Professor of philosophy and chair of the Department of Philosophy at the University of California, Berkeley, Noë has written extensively regarding sensorimotor enactivism, authoring seven books (spanning the years from 2004 until, most recently, 2023) and numerous articles, including some with O'Regan and others with Hurley[884]. Hence, Noë's version of sensorimotor enactivism is arguably the most developed and extensive theoretical account; traversing over two decades, his research began shortly after the publication of *The Embodied Mind* and continues to the present[885]. For this reason, Alva Noë could be considered as the most widely read and influential member of the sensorimotor enactivist school.

Models of enactivism – Chemero, Hutto, and Myin in the radical enactivist school

The third branch of enactivism to be considered is that of radically enactive cognition (REC). As with the other branches, the original impetus for this "school" is found in *The Embodied Mind.* In examining the sorts of knowledge obtained from the

[883] Indicative writings include: J. K. O'REGAN, «How voluntary control over information and body movements determines "what it's like" to have perceptual, bodily, emotional and mental experiences», *Front. Psychol.* 13 (2023); F. SCHUMANN – J. K. O'REGAN, «Sensory augmentation: integration of an auditory compass signal into human perception of space», *Sci Rep* 7/1 (2017), in 10.1038/srep42197 [17-10-2023]; C. WITZEL – C. RACEY – J. K. O'REGAN, «The most reasonable explanation of "the dress": Implicit assumptions about illumination», *Journal of Vision* 17/2 (2017), in 10.1167/17.2.1 [17-10-2023], 1; J. K. O'REGAN, «Missing: Empirical theories of phenomenal consciousness», *Cognitive Neuroscience* 12/2 (2021), in 10.1080/17588928.2020.1838472 [17-10-2023], 82–83; J. K. O'REGAN, *Why Red Doesn't Sound Like a Bell*, Oxford University Press 2011; S. HURLEY, «Perception and Action: Alternative Views», *Synthese* 129/1 (2001), 3–40; S. HURLEY – A. NOË, «Neural plasticity and consciousness: Reply to Block», *Trends in Cognitive Sciences* 7/8 (2003), in 10.1016/s1364-6613(03)00165-7 [17-10-2023], 342; S. HURLEY, *Consciousness in Action*, Harvard University Press, Cambridge 2002.

[884] See «About Alva — Alva Noë», 1970, *Alva Noë*, in https://www.alvanoe.com/about-alva [17-10-2023].

[885] Noë received his PhD from Harvard in 1995, a mere four years after *The Embodied Mind* was first published. His most recent book, *The Entanglement: How Art and Philosophy Make Us What We Are*, Princeton University Press 2023, was published in June of 2023.

world, it seems that "propositional knowledge" is not the most common sort; rather, what is more common is a sort of experiential, motor knowledge[886]:

> Indeed, successfully directed movement such as driving depends upon acquired motor skills and the continuous use of common sense or background know-how.
>
> Such commonsense knowledge is difficult, perhaps impossible, to package into explicit, propositional knowledge—"knowledge that" in the philosopher's jargon—since it is largely a matter of readiness to hand or "knowledge how" based on the accumulation of experience in a vast number of cases[887].

This observation regarding the nature of knowledge, namely, that it is not always representational or propositional, finds its way into all the varieties of enactivism. However, radical enactivism adopts this observation and turns it into the rallying cry of their movement. For this reason, REC could be presented as a complimentary reinforcement of a particular enactivist fact, as Daniel Hutto claims:

> REC is not an alternative version of enactivism with distinct explanatory tools in its own right…. Its analyses and arguments are designed to cleanse, purify, strengthen and unify a whole set of existing anti-representational offerings. REC's aim is *to radicalize* existing versions of enactivism and related explanatory accounts through a process of philosophical clarification…. For this reason REC does not see the various members of the enactivist family as competing rivals. Rather it aims to sanitize what such enactivist approaches have to offer, removing any residual vestiges of representationalism: REC seeks to radicalize them[888].

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[886] It seems that this experiential motor knowledge could be considered as "procedural memory" in accord with the definition given by Antoine Bouyeure and Marion Noulhiane: "Procedural memory refers to cognitive and sensorimotor habits and skills learned through repetition. The repetition of an activity leads to the progressive consolidation of the memory trace of the involved skills, leading to their automatization". See A. BOUYEURE – M. NOULHIANE, «Memory: Normative development of memory systems», (2020), in 10.1016/B978-0-444-64150-2.00018-6 [4-7-2024], 201–213.

[887] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 147-148. This is the text Hutto refers to in D. D. HUTTO, «Knowing *What*? Radical Versus Conservative Enactivism», *Phenom Cogn Sci* 4/4 (2005), in 10.1007/s11097-005-9001-z [18-10-2023], 389.

[888] D. D. HUTTO, «REC: Revolution Effected by Clarification», *Topoi* 36/3 (2017), in 10.1007/s11245-015-9358-8 [18-10-2023], 379, 382. See more recently (2021) the exchange between Hutto, Myin, and Noë: A. NOË, «The enactive approach: a briefer statement, with some remarks on "radical enactivism"», *Phenom Cogn Sci* 20/5 (2021), in 10.1007/s11097-021-09754-x [19-10-2023], 957–970. D. D. HUTTO – E. MYIN, «Re-affirming experience, presence, and the world: setting the RECord straight in reply to Noë», *Phenom Cogn Sci* 20/5 (2021), in 10.1007/s11097-021-09775-6 [18-10-2023], 971–989.

The crux of the REC campaign against representationalism revolves around arguing against the CIC thesis, namely, that Cognition necessarily Involves Content[889]. A proper understanding of the thesis and REC's objections to it rely, in turn, on what is meant by "content". In their 2013 *Radicalizing Enactivism*, Hutto and Myin offer a very brief definition: "Just what is content? At its simplest, there is content wherever there are specified conditions of satisfaction. And there is true or accurate content wherever the conditions specified are, in fact, instantiated"[890]. In their subsequent *Evolving Enactivism* (2017) the definition has been refined: "What is the central notion of content that radically minded RECers deny is a feature of basic minds? It is any notion of content that assumes the existence of some kind of specified correctness condition. To be in a contentful state of mind is to take ("represent," "claim," "say," "assert") things to be a certain way such that they might not be so"[891]. Such a definition of content generally corresponds to what analytical philosophers consider as propositional content, although Hutto and Myin note that their own definition is "somewhat elastic": for instance, content could be expressed without reference to truth, and does not necessarily include phenomenal content or whenever "an agent stands in a cognitive relation to, or has attitudes directed at, specific objects or states of affairs"[892].

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[889] Note that, despite the insistence on the radicality of their enactivism, Hutto and Myin assert that it is not a denial of *all content in all thought tout court*; for this reason the silent *n* of the "necessarily" in the acronym CIC is quite important: "Let us be clear. In pressing for REC, we do not say that CIC is never true. We do not say that cognition is never informed by or never involves content. We have no truck with that claim. We are not advancing *Really* Radical Enactive or Embodied Cognition as a thesis about the nature of *all* minds. Some cognitive activity—plausibly, that associated with and dependent upon the mastery of language—surely involves content. Still, if our analyses are right, a surprising amount of mental life (including some canonical forms of it, such as human visual experience) may well be inherently contentless". D. D. HUTTO – E. MYIN, *Radicalizing Enactivism: Basic Minds without Content*, MIT Press, Cambridge, Mass 2013, xviii. This clarification is also maintained in their later *Evolving Enactivism*.

[890] HUTTO - MYIN, *Radicalizing Enactivism*, x.

[891] D. D. HUTTO – E. MYIN, *Evolving Enactivism: Basic Minds Meet Content*, MIT Press, Cambridge, Mass. 2017, 10.

[892] HUTTO – MYIN, *Evolving Enactivism*, 11. Although a detailed examination of the claims of REC exceeds the scope of our work, from a Thomistic perspective, the fact that knowledge

Hence, in rejecting the CIC thesis, those who support REC consider that they are carrying on the rejection of representationalism that was begun in *The Embodied Mind* and continues in the various other strains of enactivism. Among the prominent figures within the REC movement are Erik Myin, Daniel Hutto, and Anthony Chemero[893].

Reasons for selecting sensorimotor enactivism for integration: Alva Noë for theoretical foundations

For our examination regarding the insights that enactivism can provide to a Thomistic understanding of perception, it behooves us to choose a particular version of enactivism. This, in turn, requires that we first pick a school and then a representative thinker from said school to limit the scope of our research.

As regards the schools, sensorimotor enactivism is to be preferred. Autopoietic enactivism focuses on the emergence of cognitive structures from lived experience as well as the auto-regulation of the organism, and REC concerns a claim regarding the nature of cognition. The first has a rather limited utility for a study of perception, and the third, while promising for a Thomistic epistemology, intends to serve as an adjunct or compliment to other schools of enactivism. However, the sensorimotor school is not only open to a neurobiological approach, thus giving us the possibility of a neuroscientific perspective that allows for quantified and empirical insights regarding perception, but it also permits us to examine the dynamic and mutually mutative aspects

might not be contentful does not seem objectionable. All knowledge must in some way be intentional, but that not all of it has content seems acceptable.

[893] Representative writings include: D. D. HUTTO, «Knowing *What*? Radical Versus Conservative Enactivism», *Phenom Cogn Sci* 4/4 (2005), in 10.1007/s11097-005-9001-z [18-10-2023], 389–405; D. D. HUTTO, «REC: Revolution Effected by Clarification», *Topoi* 36/3 (2017), in 10.1007/s11245-015-9358-8 [18-10-2023], 377–391; D. D. HUTTO – E. MYIN, *Evolving Enactivism: Basic Minds Meet Content*, MIT Press, Cambridge, Mass. 2017; D. D. HUTTO – E. MYIN *Radicalizing Enactivism: Basic Minds without Content*, MIT Press, Cambridge, Mass 2013; D. D. HUTTO – E. MYIN, «Re-affirming experience, presence, and the world»; E. CHEMERO, *Radical Embodied Cognitive Science*, MIT Press 2011.

of the body-environment couplet. For our focus, sensorimotor enactivism, which deals particularly with these means of perception, fits well.

Likewise, regarding a particular author, the theoretical component or aspect will be taken from Alva Noë. Noë has an extensive *oeuvre*, both in a chronological as well as quantitative sense. Likewise, in his replies to the objections of others, Noë provides a great deal of clarity and insight into his thought. Hence, for the purposes of our research, the sensorimotor enactivism of Alva Noë is the preferred choice, as least as regards the theoretical foundations and propositions of the school.

Reasons for selecting sensorimotor enactivism for integration: breaking with Alva Noë for neurobiological considerations

Very recently (November 2023), scholars have brought to the forefront a divide within the sensorimotor enactivist school itself. As Russell Meyer and Nick Brancazio specify in the target article of *Constructivist Foundations*, there is a *utopian* view of enactivism, which "is primarily concerned with building a philosophically cohesive enactivism", whereas *scientific* enactivism "is primarily concerned with building the conceptual machinery for enactivism chiefly in service to the more proximal needs of scientific research"[894]. As a result, the utopian view tends to focus on developing a philosophy of biological organisms, with a particular emphasis on rejecting the representationalist approach to cognition in all its various forms, whereas the scientific view is concerned with integrating empirical research into the enactivist framework[895]. Occasionally, these different emphases and goals lead to conflicting goals, and hence the suggestion of Meyer and Brancazio is to recognize the differences and keep the two systems of thought entirely separate[896].

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[894] R. MEYER – N. BRANCAZIO, «Enactivism: Utopian & scientific», *Constructivist Foundations* 19/1 (2023), 1.

[895] See, for instance, A. NOË, «Surfing Uncertainty: Prediction, Action and The Embodied Mind, by Andy Clark.», (2018), in 10.1093/mind/fzx038 [27-3-2024]. In the review, Noë initially speaks highly of Clark's predictive-processing model of mind, but then criticizes the basis for the predictions, arguing that it keeps us "stuck in our heads".

[896] See MEYER – BRANCAZIO, «Enactivism: Utopian & scientific», 9: "We hope that once understood as involving two distinct projects, enactivists can appreciate the achievements and

However, the responses to their article, published in the same issue of *Constructivist Foundations*, indicate that while other thinkers find the distinction to be valid, but the application of separating the systems as extreme. For instance, this is the position of Susana Ramírez-Vizcaya, who notes:

> I completely agree with M&B about the need to develop more empirical work that tests and implements enactive ideas. However, this does not imply that theoretical and empirical efforts should be considered as two separate projects. Furthermore, making such a clear-cut distinction between utopic and scientific enactivism could lead to a scientific project that is more computationalist than enactivist[897].

In a similar vein, Dave Ward in his article «Utopian and Scientific Enactivism: Never Ever Getting Back Together?» concludes that the original enactivist project was not meant to be so divided, and that while a division currently exists, perhaps the most fruitful results can be obtained by joining them together. As he notes, however, this "seems to involve blurring the boundaries between projects that Meyer and Brancazio suggest should be kept sharply distinct. So, whilst Meyer and Brancazio make a good case that utopian and scientific enactivism could do with a trial separation, I wonder – do they see any prospects for an eventual reconciliation?"[898]

Both Ward, as well as Carl B. Sachs and Andrea Gambarotto, in their article «Enactivism as Dialectic of Philosophy of Nature and Scientific Practice», trace the division between the two strands of sensorimotor enactivism to the early theoretical setting in which enactivism was born[899]. When *Embodied Mind* was published, the dominant paradigm of cognitive science was the representationalist view, that is, that the mind constructs a sort of map or image based on what was received through the senses. While this was the scientific context earlier, as Ward notes:

> I think it is much less plausible that we are in such a context *now*. Mainstream cognitive science has moved on from the simple cognitivist idea that psychological states can be

successes of both utopian and scientific enactivism, and that both can pursue their projects in the ways that best meet their own differing goals".

[897] S. RAMÍREZ-VIZCAYA, «Utopian and Scientific Enactivisms: Two Divergent Projects?», *Constructivist Foundations* 19/1 (2023), 15.

[898] D. WARD, «Utopian and Scientific Enactivism: Never Ever Getting Back Together?», *Constructivist Foundations* 19/1 (2023), 21.

[899] C. B. SACHS – A. GAMBAROTTO, «Enactivism as Dialectic of Philosophy of Nature and Scientific Practice», *Constructivist Foundations* 19/1 (2023), 17–19.

> exhaustively explained via appeal to inner symbol-manipulation. Nonetheless, much work in the philosophy of embodied cognition still frames itself in terms of a revolutionary attack on cognitivist shibboleths[900].

The utopian enactivists firmly maintain this line on which enactivism began, obsessed with avoiding the slightest semblance of representationalism. Indeed, as Sachs and Gambarotto contend, even if cognitive science has abandoned the representationalist perspective, enactivists are still not satisfied, and demand that the science should forsake all *language* that seems to speak of representations. These scholars offer a paradigmatic example:

> The response taken by enactivists has been, it seems, to say that while it is good that cognitive scientists have moved past the classical cognitivist conception of computations and representations, they should take the next step and abandon such problematic language entirely. The following is representative of the enactivist position: "it might be better to abandon all talk of representations because it is useless and recognize instead the existence of structural dynamic wholes (*Gestalten*) that predispose the brain-body-environment system to acquire a particular dynamic coordination" (Sepúlveda-Pedro 2023: 47)[901].

However, the two authors immediately follow up this quotation with a question and insights of their own:

> However, to whom is "all talk of representations" useless? And for whom is such language problematic? Recent work in philosophy of cognitive neuroscience (e.g., Piccinini 2022) suggests that the word "representations" now functions to mean what Sepúlveda-Pedro described as "structural dynamic wholes that predispose the brain-body-environment system to acquire a particular dynamic coordination"[902].

In other words, the issue at the heart of the enactivism-representationalism debate is no longer what it was in the beginning. When *Embodied Mind* was published, representationalism meant the construction of a mental map of real-world terrain or properties. However, now the term "representation" can and does refer to precisely what the enactivists contend is the answer to representationalism, namely, "structural

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[900] WARD, «Utopian and Scientific Enactivism», 20. Emphasis in the original.

[901] SACHS - GAMBAROTTO, «Enactivism as Dialectic of Philosophy of Nature and Scientific Practice», 18. The parenthetical reference is to Sepúlveda-Pedro's 2023 book *Enactive cognition in place: Sense-making as the development of ecological norms*. In a footnote, Sachs and Gambarotto note that Sepúlveda-Pedro cites Shaun Gallagher as supportive of this position.

[902] SACHS - GAMBAROTTO, «Enactivism as Dialectic of Philosophy of Nature and Scientific Practice», 18.

dynamic wholes that predispose the brain-body-environment system to acquire a particular dynamic coordination"[903]. These wholes must be features of the brain and the body that incorporate environmental data or factors as well. The issue appears to be one of language rather than of content.

The issue of language is not one easily overcome. How ingrained enactivism's opposition to anything reeking of representationalism can be seen, for instance, in Alva Noë's review of Andy Clark's 2015 book, *Surfing Uncertainty: Prediction, Action, and the Embodied Mind*[904]. While the review starts with a substantially positive appraisal of Clark's work, Noë then argues against Clark's *predictive processing* view[905]. At the review's conclusion, Noë returns to the contention which he considers damning for Clark's theory:

> What gets extended and embedded, on Clark's view, is not the mind, or the agent, but the brain, thought of, that is, as the local vehicle of computation. The body and the world enter into the story at this brain- or vehicle-level and thanks to the empirical fact that, at least according to Clark's version of the predictive brain hypothesis, computations distribute across organic brain, body, and environment. But this doesn't get *us* out of *our* heads and into our situated bodies, or our bodies or the world into our experience. At most it flattens things out and leaves us stranded inside a virtual head whose emergence from causal, informational, and dynamical exchange among the brain, body, and environment remains, alas, a mystery[906].

In other words, according to Noë, Clark's unforgivable sin is to make the brain the place where world and body are incorporated into the sensorimotor structures and contingencies of the perceiver. This is utterly unacceptable for Noë: to reduce everything to the brain is to reject enactivism and fall into representationalism because

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[903] SACHS - GAMBAROTTO, «Enactivism as Dialectic of Philosophy of Nature and Scientific Practice», 18.

[904] A. NOË, «Surfing Uncertainty: Prediction, Action and The Embodied Mind, by Andy Clark.», (2018), in 10.1093/mind/fzx038 [27-3-2024].

[905] For instance, Noë enthusiastically notes that "This is a rich brew of ideas and the book is inspiring. It pits the new (active, engaged, embodied, situated, and predictive) against the old (passive, detached, hyper-cognitive, internal). Instead of thinking of the brain as generating a representation of the world, feedforward from the eyes to the brain, think of the brain as using the eyes (or sensory systems generally) to update and fine-tune its own predictions about what is going on": NOË, «Surfing Uncertainty», 612-613.

[906] NOË, «Surfing Uncertainty», 617. Emphasis in original.

now the world and the body are simply features in a brain "model" or "map" that enables predictions to be made.

However, the question then arises for Noë: if the brain or nervous system is not where this information is collected and gathered, allowing animals to incorporate their specific bodies, movements, and the like in their engagements with the world, where could this take place? If the *a priori* decision is made to reject anything representational, then it is difficult, if not impossible, to see how the triad of brain-body-world can be coherently integrated into an empirical and scientifically rigorous system[907].

Given these considerations, the methodology that we will follow here is to take the theoretical underpinnings of enactivism from Alva Noë's works. This "utopian"-leaning perspective will in turn be supplemented by the "scientific" approach, citing neurobiological research that provides an empirical foundation for the incorporation of environmental and sensorimotor factors into perception. For this, then, we must acknowledge that we break with Noë specifically and utopian sensorimotor enactivism generally by refusing to reject *tout court* terminology and insights that could be considered in any way as representationalist. Rather, we propose, following in the footsteps of scientific sensorimotor enactivists, that this information is somehow incorporated into the brain or nervous system: this does not require the production of an internal map (representationalism *stricte dicta*) but does require the formation of some cognitive structure in the broad sense.

Key concepts of sensorimotor enactivism

The last methodological concern is to clearly define the concepts to be used. Since our aim is to examine perception and its objects, the first concept to be considered

[907] Indeed, many scientists have seen in the predictive processing a suitable explanation of the insights offered by enactivist thinkers. See, for instance, A. K. SETH, «A predictive processing theory of sensorimotor contingencies: Explaining the puzzle of perceptual presence and its absence in synesthesia», *Cognitive Neuroscience* 5/2 (2014), in 10.1080/17588928.2013.877880 [27-3-2024], 97–118.

is that of perception as understood by the sensorimotor school of enactivism, followed by Noë's understanding of sensorimotor contingencies and the meaning of enactivism in his thought.

Perception

The nucleus of Noë's presentation of his views on perception are found in his two books, the 2004 *Action in Perception* and the 2009 *Out of Our Heads*, the former a more academic text and the latter more for popular divulgation. As recently as June 2021 Noë affirmed that the basic notion of perception as present in *Action* is still valid: "What is perceiving? This was our formula: it is *an activity of exploring the world drawing on knowledge of sensorimotor contingencies*"[908].

However, this summary formula relies on organically developed notions explained in *Action in Perception*. In that earlier text, Noë outlines the understanding of perception that he will champion and draws a distinction between sensation and perception: "The key to our theory is the idea that perception depends on the possession and exercise of a certain kind of practical knowledge…. [T]o perceive is not merely to have sensation, or to receive sensory impressions, it is to have sensations that one understands"[909].

There are two points to be considered: first, the distinction between sensation and perception, and, second, the clarification of the "practical knowledge" that is required for perception and that enables understanding. The first consideration naturally leads to the consideration of the second. The distinction between sensation

[908] A. NOË, «The enactive approach: a briefer statement, with some remarks on "radical enactivism"», *Phenom Cogn Sci* 20/5 (2021), in 10.1007/s11097-021-09754-x [19-10-2023], 960. Emphasis in original; after this statement, Noë gives the reference for *Action*. However, there are even earlier references to this thought based on studies on change blindness. For instance, see A. NOË – L. PESSOA – E. THOMPSON, «Beyond the Grand Illusion: What Change Blindness Really Teaches Us About Vision», *Visual Cognition* 7/1–3 (2000), in 10.1080/135062800394702 [26-1-2024], 93–106. At 104, the authors note: "On the enactive approach we favour (Noë, in press; Pessoa et al., 1998; Thompson et al., 1992), seeing is an activity of the whole animal—visually guided exploration of the environment—not the construction of a world-model in the brain".

[909] A. NOË, *Action in perception*, MIT Press, Cambridge, Mass 2004, 33.

and perception, however, relies on another distinction, that of appearance and sense data. Later in the same text, Noë clarifies:

> Perception is a way of finding out how things are from an exploration of how they appear. In this sense, appearances are perceptually basic… Our acceptance of this in no way commits us to the idea that, as it were, our perceptual consciousness is confined to sense data. This is so because appearances are not merely sense data; they are aspects of how things are. Perception is an activity of learning about the world by exploring it. In that sense, then, perception is mediated by appearance[910].

Appearance, then, refers to the way objects *seem* to the perceiving subject; it is how they *appear* to a perceiver and it is these appearances that a subject *experiences*. For instance, an object could appear blue or black depending on illumination, or round or oval depending on the perceiver's visual angle. On the other hand, *sense data* refers to the objective characteristics or properties of an object, present regardless of the perceiver's perspective or even of knowing what the object is[911]. As Noë affirms in his chapter on "Colors Enacted" that "Colors, on the enactive account, are real. Colors are visible properties of, for example, surfaces. In particular, colors are ways objects interact with their environments, especially illumination. They are patterns in how things look"[912]. Noë himself extends this paradigm "to other qualities perceptible in other sensory modalities"[913] after making the distinction between color and color experience, and hence, *mutatis mutandis*, between the objective sense data and the subjective experiences of appearances.

It is based on this distinction that Noë explains the difference between sensation and perception:

> Mere sensory stimulation does not add up to experience. We don't *apply* sensorimotor knowledge *to* experience. Rather, we bring it to bear *in* experience; bring it to bear in this way enables what would otherwise be mere sensory stimulation without world-

[910] NOË, *Action in perception*, 165-166.
[911] Or even without the presence of a perceiver: "Rubies would be red, and the sky blue, regardless of whether there were sentient color perceivers". NOË, *Action in perception*, 150.
[912] NOË, *Action in perception*, 150.
[913] NOË, *Action in perception*, 160.

> presenting content *to be* experienced. Perceptual experience *just is* a mode of skillful exploration of the world. The necessary skills are sensorimotor and conceptual[914].

In this distinction, Noë echoes J. J. Gibson's contention that sensations and perceptions are essentially different, though not as radically as Gibson[915]. Indeed, Noë "repurposes" Gibson's thoughts and contends that "to perceive, according to the view being developed here, is to perceive structure in sensorimotor contingencies. To see that something is flat is precisely to see it as giving rise to certain possibilities of sensorimotor contingencies"[916]. Sensation is insufficient for knowing the world (in Noë's words, "to perceive is not merely have sensation, or to receive sensory impressions"), while perception, although relying on the objective properties of the object, is an operation that goes beyond the mere reception of sense data ("it is to have sensations that one understands")[917]. Likewise, it seems that, whereas Gibson seems to focus more on the static or "invariant" aspect of objects, Noë is more concerned with the changing or dynamic aspects. It is these aspects that are meant by the term sensorimotor contingencies, the "practical knowledge" that allows for perception[918].

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[914] NOË, *Action in perception*, 194. Emphasis in original. Note, however, the observation of Hutto and Myin in *Radicalizing Enactivism,* 31: "In defending these ideas, Noë advances an essentially Kantian line, assuming that we bring concepts to bear on what is sensorily given, but he does so with an important twist: *he adopts a quite unorthodox understanding of the nature of concepts*. For him, concepts are abilities or 'practical skills' (2004, p. 199). In this respect, Noë's position is complicated. He breaks rank with standard intellectualist accounts that regard concepts as discrete and meaningful thought contents—i.e., as representations. (See, e.g., Tye 2009, p. 39–40.)." Emphasis added.

[915] See A. NOË, «Understanding *Action in Perception*: Replies to Hickerson and Keijzer», *Philosophical Psychology* 20/4 (2007), in 10.1080/09515080701474554 [24-1-2024], 534: "Mere sensory stimulation is necessary but not sufficient for perceptual experience, just as mere confrontation with marks and noises does not suffice for one to perceive words or speech acts. For sensation to rise to the level of genuine perception, it must be sensation whose significance we understand". Gibson, as it must be recalled, rejected any continuity between sensation and perception.

[916] NOË, *Action in perception*, 105. Just before the cited text, Noë writes: "Gibson's view can now be usefully reformulated in the context of the enactive approach". This is said, bearing in mind the earlier comments that enactivism sees itself as opposed to ecological psychology.

[917] NOË, *Action in perception*, 33.

[918] It is for this reason that Noë also speaks of perception as *extended*, although to a much lesser extent than he discusses it as enactive. For instance: "Experiences are neural processes, to be sure; but they are not *only* neural processes. Perceptual experience depends constitutively on factors that are not neural. The substrates of perceptual consciousness are (in this sense)

Sensorimotor contingencies

Having established the difference between sensation and perception by means of the distinction between sense data and experience, we turn to the second consideration, to the sensorimotor contingencies. In his 2021 article, Noë neatly ties experience together with these contingencies:

> According to our approach, sometimes known as sensorimotor enactivism, the animal's practical knowledge of the ways its own movements produce sensory change is the ground of the animal's experience of the world's presence. It is the animal's knowledge that by moving it can bring more of what there is into view that is the basis of its sense, now, of the presence of that which is not yet in view. Our approach might better be called sensorimotor *knowledge* enactivism, since what does the work here is *knowledge* of sensorimotor contingencies rather than the mere fact of their obtaining[919].

The emphasis on *knowledge* of these contingencies or dependencies, and not necessarily movement *per se*, is important; in an earlier reply (2007) to critics who claimed that his theory made perception dependent on action or motion, Noë argued:

> Perceptual presence requires that the perceiver possess and exercise sensorimotor understanding. This is the central claim of the theory I present in *Action in Perception*. It is in terms of this central claim that the theory advances a substantial connection between perception and action. *Perception is an activity that requires the exercise of knowledge of the ways action affects sensory stimulation*. Notice that it is no part of this view that perceiving actually requires action or movement. There is a low-level sense in which that is true, i.e., as a matter of fact, retinal cells would fatigue and cease to function if there were no eye movements. But it would be silly to suggest that there is some deeper reason why perception requires movement. It would also be silly to suggest that all perception is *for* movement. Nowhere in *Action in Perception* do I advance these claims[920].

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extended" in A. NOË, «Magic Realism and the Limits of Intelligibility: What Makes Us Conscious*», *Philosophical Perspectives* 21/1 (2007), in 10.1111/j.1520-8583.2007.00132.x [26-1-2024], 457. Emphasis in original. Likewise, in A. NOË, «Conscious Reference», *The Philosophical Quarterly* 59/236 (2009), in 10.1111/j.1467-9213.2009.630.x [26-1-2024], 470–482, after discussing the possibility of perceiving a friend in a city far away, who is perhaps dead, Noë contends that his thought extends his perception to his friend: "So it is with my long lost friend. The manner of his presence to mind is fixed by the extent to which I have or fail to have access to him, and also by the kind of skills of access in virtue of which I manage to have access to him. I do not claim that *all* thought is extended perception. My claim is that all thought is directed to its object thanks to the thinker's skillful access to the object" (481). Emphasis in original.

[919] NOË, «The enactive approach: a briefer statement», 959. Emphasis in original.

[920] NOË, «Understanding *Action in Perception*», 532. Emphasis in original.

In other words, it is not action or movement *per se* that is needed for perception; it is sufficient, and indeed necessary, that an animal concurrently grasp the ways in which movements and actions *could* affect what it perceives. This is the meaning of "contingencies" in "sensorimotor contingencies": these are *dependencies* or *relations* (Noë uses all three terms, as will become apparent in the texts cited below), and it is grasping these dependencies that allow an animal to perceive.

This decision is essential to respond to some of the critiques that have been made against Noë's thought. For instance, Kenneth Aizawa argues that Noë's theory, which, in Aizawa's words, is that "perceptual experiences are *constituted*, in part, by the exercise of sensorimotor skills" (COH, in Aizawa's shorthand) has less empirical evidence than the claim that "perceptual experiences are *caused*, in part, by the exercise of sensorimotor skills" (CAH)[921]. In his article, Aizawa offers four empirical examples that he contends would support his CAH hypothesis over Noë's COH: cases of congenital cataracts, distorting lenses, visual fading of retinally stabilized images, and paralysis. However, Aizawa himself admits that the first three cases do not support COH any more than CAH, and the last, examining patients under general anesthesia and muscle relaxants during surgery who nevertheless perceive pain and speaking, relies on a seeming misunderstanding of Noë's thought. Aizawa writes that "cases of complete paralysis found in the use of neuro-muscular blockade show that perception is possible without the exercise of sensorimotor skills"[922]. However, as seen above, Noë speaks of "the exercise of the knowledge", and not necessarily exercise *simpliciter*[923]. Hence, Aizawa's contention seems to miss the mark.

In *Action and Perception*, Noë divides these dependencies into two classes: first, there are *movement*-dependent relations, wherein the perceiving subject's own movements affect what is perceived: "*Movement-dependent* sensorimotor contingencies are patterns of dependence between sensory stimulation, on the one

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[921] K. AIZAWA, «Understanding The Embodiment of Perception», 104/1 (2007), in 10.5840/jphil2007104135 [26-1-2024], 5. Emphasis added.

[922] AIZAWA, «Understanding The Embodiment of Perception», 24.

[923] See NOË, «Understanding *Action in Perception*», 532.

hand, and movements of the body, on the other"[924]. Secondly, there are *object*-dependent relations: "movements *of the object* produce sensory change"[925]. "These are patterns of dependence," claims Noë, "between sensory stimulation and *the object's* movement, or the object's changing relation to its surrounding"[926]. Noë notes that "crucially, the perceptual experience of color depends on the perceiver's knowledge of *both* kinds of sensorimotor patterns"[927].

However, another clarification is needed regarding what sort of knowledge of these contingencies is to be had. We return to a text cited above: "We don't *apply* sensorimotor knowledge *to* experience. Rather, we bring it to bear *in* experience; bring it to bear in this way enables what would otherwise be mere sensory stimulation without world-presenting content *to be* experienced"[928]. Again in his 2007 article, Noë argues that we experience what we have *skillful* access to:

> The proposal I develop in *Action in Perception*, and other writings (Noë, 2005), goes like this: features show up in experience in so far as we have *skillful* access to them. Crucially, we have skillful access to the occluded portions of things we see no less than to their unoccluded parts. What explains our perceptual sense of the presence of the hidden parts of a tomato (say) is the fact that we have access to them. This access, in turn, is underwritten by our familiarity with the sensorimotor patterns that govern our

[924] NOË, *Action in perception*, 129.

[925] NOË, *Action in perception*, 64. Noë introduces this distinction here (ch. 2, sec. 5), but expands it in chapter 4. Emphasis in original.

[926] NOË, *Action in perception*, 130. Emphasis in original.

[927] NOË, *Action in perception*, 129. It is worth noting that Noë here adds an endnote regarding the two sorts of sensorimotor contingencies: "In O'Regan and Noë 2001a, we argue that the two kinds of sensorimotor rules correspond to sensation and perception, respectively" (244n3). The article referenced is J. K. O'REGAN – A. NOË, «A sensorimotor account of vision and visual consciousness», *Behav Brain Sci* 24/5 (2001), in 10.1017/S0140525X01000115 [25-1-2024], 939–973. Here, the authors argue that "It is worthwhile to note that our distinction between two different classes of sensorimotor contingency roughly corresponds to this distinction between sensation and perception. Sensorimotor contingencies of the first sort – those that are determined by the character of the visual apparatus itself – are independent of any categorization or interpretation of objects and can thus be considered to be a fundamental, underlying aspect of visual *sensation*. Sensorimotor contingencies of the second sort – those pertaining to visual attributes – are the basis of visual *perception*" (943). It is for this reason that Noë rejects the rigid dichotomy of Gibson who said: "Perception is not based on sensation" (J. J. GIBSON, *The Senses Considered as Perceptual Systems*, 2). To perceive requires sensation and knowledge of the ways in which the perceiver affects what is perceived (akin to sensation) as well as the object (more akin to perception).

[928] NOË, *Action in perception*, 194. Emphasis in original.

> relation to the tomato (front and back), i.e., with the ways movements change our sensory relation to the tomato. The solution to the problem of perceptual presence comes in appreciating that perceptual presence is access and access is made possible by sensorimotor understanding[929].

With this final statement, we can synthesize what Noë has established thus far regarding perception:

- Sensation, the mere reception of sense data, is not perception; perception requires sensory stimulation, but alone this is insufficient. We must understand that stimulation to have perception; it must make the world present to us.
- Perception is the exploration and gaining of knowledge about the world by means of the appearances of objects around us, that is, by means of what we experience. Appearances make the world present to us.
- Objects appear to us is based on the way the object *seems* to us, which entails not only a foundation in objective characteristics but also an understanding of how both our movements and the object's movements *could or would* affect those appearances and features, that is, how our experience of that object would change if either the subject or object moved. Actual movement is not necessary for perception, but knowledge of those relations or contingencies is.
- As a result, we can speak of experiences we have *skillful* access to, that is, what features or appearances could be made present by means of activation or engagement of those contingencies, e.g, by moving, even if there is no sense data received from those features. This is perceptual presence of unsensed objects or features, as when we know that the hidden side of a tomato is present even though we do not see or touch it[930].

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[929] NOË, «Understanding *Action in Perception*», 532. Emphasis in original.

[930] The example of access to the tomato's unseen side is a typical Noë-ian example: it is found, for instance, in NOË, *Action in perception*, 62, NOË, «Conscious Reference» throughout

This notion of presence has served Noë's critics, such as Laasik, Declerck, and Ávila, as a point of contention[931]. This group attacks Noë's *presence as access*, arguing in various ways that access and presence do not require sensorimotor abilities. For instance, Declerck argues that, while Noë speaks of "thought-presence" there are many instances of things present in the imagination that are inaccessible by means of sensorimotor movements[932]. It could be the case that there is no satisfactory solution to these difficulties, since Noë's approach, like that of his critics, is essentially a phenomenological perspective, and hence to establish a robust notion of presence that satisfies every possible means of access is perhaps impossible.

The last point to consider in Noë's understanding of sensorimotor contingencies is precisely what sort of knowledge is this "*knowledge of the ways action affects sensory stimulation*"[933]. We have already noted that Noë considers it a "practical knowledge"[934], but this, too, is later nuanced. In a 2007 reply to critics of *Action in Perception*, Noë comments:

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the text, A. NOË, «Experience of the world in time», *Analysis* 66/1 (2006), in 10.1093/analys/66.1.26 [26-1-2024], 26, 28-29, SCIENCE AND NONDUALITY, «Getting Out Of Our Heads - Alva Noë», 2013, *YouTube*, in https://www.youtube.com/watch?v=Xhk9MkTkSPA [26-1-2024] at [9.13] and after, BIG THINK, «Alva Noë: The Puzzle Of Perception», 2013, *YouTube*, in https://www.youtube.com/watch?v=9TrbOoirkhM&t=75s [26-1-2024], and NOË, *Varieties of Presence*, 74.

[931] See K. LAASIK, «On perceptual presence», *Phenom Cogn Sci* 10/4 (2011), in 10.1007/s11097-011-9220-4 [26-1-2024], 439–459, as well as G. DECLERCK, «What could have been done (but wasn't). On the counterfactual status of action in Alva Noë's theory of perception», *Phenom Cogn Sci* 16/5 (2017), in 10.1007/s11097-016-9474-y [26-1-2024], 765–784, I. ÁVILA, «Perceiving the intrinsic properties of objects», *Phenom Cogn Sci* 14/1 (2015), in 10.1007/s11097-013-9311-5 [26-1-2024], 55–71, and M. WHEELER, «The Revolution will not be Optimised: Radical Enactivism, Extended Functionalism and the Extensive Mind», *Topoi* 36/3 (2017), in 10.1007/s11245-015-9356-x [26-1-2024], 457–472. For additional texts where Noë defends and explains his views, see also A. NOË, «Causation and perception: the puzzle unravelled», *Analysis* 63/278 (2003), in 10.1111/1467-8284.00017 [26-1-2024], 93–100, A. NOË, «Sensations and Situations: A Sensorimotor Integrationalist Approach», *Journal of Consciousness Studies* 23/5–6, 66–79, and A. NOË, «The critique of pure phenomenology», *Phenom Cogn Sci* 6/1–2 (2007), in 10.1007/s11097-006-9043-x [26-1-2024], 231–245.

[932] See DECLERCK, «What could have been done (but wasn't)», 775-776.

[933] NOË, «Understanding *Action in Perception*», 532. Emphasis in original.

[934] NOË, «The enactive approach: a briefer statement», 959. Emphasis in original.

> I have been emphasizing sensorimotor understanding. By sensorimotor understanding I do not mean that "What we know (or understand) implicitly, is how to move in order to perceive" (p. 511), as Hickerson would have it. Sensorimotor understanding is *not* practical in this sense. Nor is it the case that we can only see what we can act on, or that we can only see what we know how to use or touch or reach for. (John Campbell, 2002, justifiably mocks such a position.) Nevertheless, it remains the case that sensory stimulation is intelligible only if its relation to us and to things around us is comprehensible. This brings us to a further point: I emphasize sensorimotor understanding, but I take this to be precisely a species of understanding in general[935].

Knowledge of these sensorimotor contingencies does *not* mean knowing how to move to perceive, *nor* does it mean that we disregard or do not even sense what we are unfamiliar with. Beyond these negative considerations, more recently, in 2021 Noë offered this positive formulation:

> Our approach might better be called sensorimotor *knowledge* enactivism, since what does the work here is *knowledge* of sensorimotor contingencies rather than the mere fact of their obtaining. The view tries, in this way, to avoid reductionism (i.e. the reduction of mind to non-mind). Of course the sort of "knowledge" we took for granted was not conceived of as linguistic or intellectual. It was meant to be available to non-linguistic animals and indeed to serve as a ground-level in explaining the possibility of different, more conceptual, more linguistic forms of understanding. The relevant knowledge of sensorimotor contingencies was glossed as implicit, practical, and non-propositional, as a matter of know-how[936].

The knowledge and understanding of sensorimotor contingencies, a knowledge that is necessary for perception, is "implicit, practical, and non-propositional". The animal or person "knows how" to move and explore their environment; it could be understood as a sort of implicit motor knowledge, something the animal or person simply knows how to do. Noë also considers language as a bodily activity upon which other forms of thought and experience can be rooted[937].

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[935] NOË, «Understanding *Action in Perception*», 535. Emphasis in original.

[936] NOË, «The enactive approach: a briefer statement», 959.

[937] See NOË, «The enactive approach: a briefer statement», 962: "I agree that language and other 'special sorts of shared practices' scaffold and so enable distinctive forms of thought and experience. It is a mistake, however, to concede, to the establishment, as it were, that these distinctive forms of thought are 'contentful and representationally based.' Representationalism is wrongheaded, I would say, no less when it comes to language than when it comes to perceiving or other more 'elementary' modes of thought and awareness. Language is no less bodily than perceiving or dancing, and like dancing, it is a mode of activity and a medium for doing, thinking, finding, exploring, in effect, a medium for being. Crucially, it is also a normative space where what we do is subject to critical reflection and inspection".

This notion of "non-propositional" knowledge has been the source of criticism. For instance, Stanley and Williamson have contended that there can be no "knowledge-how" without a "knowledge-that". In other words, all knowledge must be propositional. Such a statement, if true, would render impossible the non-propositional sensorimotor contingencies. However, Noë has responded with an article of his own, in which he responds to the various objections with counter-examples[938].

Finally, in the same 2021 article, Noë adds one last point regarding perception: "What is perceiving? This was our formula: *it is an activity of exploring the world drawing on knowledge of sensorimotor contingencies*. But now we can ask: is this a thesis of the personal or the sub-personal level?"[939] The problem of this question of agency, Noë notes, is that at the personal level too much influence would be ascribed to the individual (as he writes, "We are not all heroic explorers, continuously at work enacting the world around us"[940]). However, sub-personal level seems to neglect that the perceiving subject is *doing* something; it is an active participant and contributor to what is perceived, and not merely a passive recipient.

Hence, the solution Noë finds is that the level of agency is an intermediate one, and this also brings an important consideration as to *how* this knowledge is present in the perceiver:

> I have tried to clarify this in recent work (Noë, 2015). The critical level at which this theory is intended to operate is *intermediate* between the personal and the sub-personal levels. This has been called the embodiment level (e.g. by Ballard, 1991) and it is sometimes useful to think of it as the level of habit. What kind of activity is perceiving, then? It is habitual activity. The thing about habits, as distinct from sub-personal processes and events, is that they belong to us, even when we do not control them deliberately or even consciously. And moreover, we can become aware of them as we can never become aware of neural activity itself. Habit, I suggest, is quasi-personal[941].

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[938] J. STANLEY – T. WILLLAMSON, «Knowing How», 98/8 (2001), in 10.2307/2678403 [26-1-2024], 411–444. For the reply, see A. NOË, «Against intellectualism», 65/288 (2005), in 10.1111/j.1467-8284.2005.00567.x [26-1-2024], 278–290.

[939] NOË, «The enactive approach: a briefer statement», 960. Emphasis in original.

[940] NOË, «The enactive approach: a briefer statement», 960.

[941] NOË, «The enactive approach: a briefer statement», 960. Emphasis in original. The reference Noë, 2015, is to A. NOË, *Strange tools*, Hill and Wang 2015. However, here the topic is mentioned only four times, most extensively in an endnote that refers the reader back to *Out*

In a note regarding this embodiment level in his 2015 work, Noë writes that "developmental psychologist Linda Smith has shown that children and their caretakers participate in organized communication, teaching, and learning at precisely this level of looks, reaches, handlings, nods, and pointings"[942]. "For more on the embodiment level itself", he refers to a 1997 article, "Deictic codes for the embodiment of cognition", by Dana Ballard and his team[943]. These researchers propose that the embodiment level takes places on the level of 1/3 of a second, "the shortest time scale at which body movements such as eye movements can be observed. We argue that this time scale defines a special level of abstraction, which we call the *embodiment level*"[944].

This embodiment level refers in a particular way to the way locations are selected as a focus of attention for action. For instance, in deciding to grasp an object, the subject's attention is focused on the object itself. As Ballard and his team contend:

> Placing a grasped object can be done in a similar manner. The location can be selected using an eye fixation and that fixation can then be used to guide the hand movement. Informally, we refer to these behaviors as "do-it-where-I'm-looking" strategies, but more technically they are referred to as deictic strategies after Agre and Chapman (1987), building on work by Ullman (1984). The word *deictic* means "pointing" or "showing." Deictic primitives dynamically refer to points in the world with respect to their crucial describing features (e.g., color or shape). The dynamic nature of the referent also captures the agent's momentary intentions[945].

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of Our Heads (see NOË, *Strange tools*, 218n). In this note, Noë clarifies what this embodiment level means: "The crucial thing about the embodiment level is that it is neither entirely *personal* (conscious, controlled, governed by thought and planning), nor is it properly *sub*personal (automatic, reflexive, independent of thought and understanding). Subpersonal-level activity unfolds on time scales of milliseconds. Personal-level action, in contrast, takes places at much larger scales of minutes, hours, days, weeks, and lifetimes. The embodiment level, as Dana Ballard, who first introduced this idea, understood, unfolds at an intermediate level, on the scale of seconds. This is the time scale at which we coordinate our looks and reaches, at which we communicate with a glance or a nod". Emphasis in original. In *Out of Our Heads*, chapter 5 is entitled, simply, "Habits". However, the chapter here speaks of habitual activity in the broadest of terms: recognition of emotions, facial recognition, language, and more.

[942] NOË, *Strange tools*, 218n.

[943] D. H. BALLARD – M .M. HAYHOE – P. K. POOK – R. P. N. RAO, «Deictic codes for the embodiment of cognition», *Behav Brain Sci* 20/4 (1997), in 10.1017/s0140525x97001611 [14-9-2024], 723–742.

[944] BALLARD – HAYHOE – POOK – RAO, «Deictic codes», 724. Emphasis in original.

[945] BALLARD – HAYHOE – POOK – RAO, «Deictic codes», 725. Emphasis in original.

In his 2010 *Out of Our Heads*, Noë's fifth chapter discusses habits in broad terms, but he contends that "you need habits of thought and behavior in order to be decisive and deliberate, for habit is the foundation of skill"[946]. This holds even for more intellectual endeavors such as arithmetic and science: "It is true, then, that science and learning require foundations. But the true foundation is not true belief or necessary truth. At the foundation of science is basic, acquired, practical skill"[947]. Hence, there is clearly a sense in which habits are learned or acquired.

However, Noë then proceeds to offer an argument that touches directly on the quasi-personal or embodiment level, and these skills, he notes, can be considered *unlearned* or *instinctual*:

> Whereas a person automatically looks at what you are pointing at when you offer an explanation, a dog or a cat more likely looks at your hand. Wittgenstein noticed that this natural capacity we have to attend jointly to an object of interest is an unlearned primitive skill without which communication probably would not be possible… And practical skill itself is, at least at its basic levels, independent of our possession of the intellectual powers that depend on them[948].

Hence, when referring specifically to perception, Noë's habitual activity seems to refer to the quick movements that serve to bring the world into focus for us. Perception is an exploration of the world that requires knowledge of sensorimotor contingencies. In other words, perception is a habitual activity that is not entirely sub-conscious, nor entirely willful, an activity that makes use of the implicit, practical, and non-propositional knowledge of how sensorimotor relations between the perceiver and the perceived hold and exist in the world. Likewise, perception could also be considered as *dispositional*, since by perception the perceiver is disposed to act further or to change its act based on the consequences or results of its first action; this knowledge can then serve as the basis for further skills and knowledge. Indeed, as will be discussed later, although there are basic habits that are instinctual, these provide merely a first step which must be refined and improved through experience and

[946] NOË, *Out of Our Heads*, 118.
[947] NOË, *Out of Our Heads*, 118.
[948] NOË, *Out of Our Heads*, 118.

practice, e.g, the suckling reflex of a newborn, which must be improved through the mutual feedback of mother and child.

There have been critiques raised over the notion of sensorimotor knowledge. Indeed, the debate between Noë and Hutto, Myin, and Buccella has centered on this understanding of sensorimotor knowledge, which the latter consider as confusing at best, and contradictory at worst[949]. However, perhaps Noë's 2021 article will resolve these contentions with the more explicit indications regarding that form of knowledge.

Enactivism

While Noë is considered the principal figure in sensorimotor enactivism, the term "enactivism" itself rarely appears in his books. Indeed, the term does not appear at all in *Out of Our Heads* (2009), *Strange Tools* (2015), *Learning to Look* (2021), or *The Entanglement* (2023), only once in *Varieties of Prescence* (2012), and a mere six times in *Action in Perception*[950]. As Noë writes in *Varieties of Prescence* after discussing his views, "I refer here to this account of perceptual consciousness as actionism". To this, he appends a footnote that clarifies: "Elsewhere I have spoken of the enactive or sensorimotor approach; in work with Hurley we speak of the dynamic sensorimotor approach"[951]. It appears that Noë shies away from the term *enactive*, and his 2021 article offers insight as to why. Early in the article he affirms: "The core claim of the enactive approach, as I understand it, and as this was developed in Noë, 2004, and also O'Regan & Noë, 2001, is that presence does not come for free. It doesn't

[949] HUTTO – MYIN, *Radicalizing Enactivism*, 28. See also the exchange in *Phenom Cogn Sci* 20/5 with the articles D. D. HUTTO – E. MYIN,, «Re-affirming experience, presence, and the world: setting the RECord straight in reply to Noë», *Phenom Cogn Sci* 20/5 (2021), in 10.1007/s11097-021-09775-6 [18-10-2023], 971–989, and A. NOË, «The enactive approach: a briefer statement, with some remarks on "radical enactivism"», *Phenom Cogn Sci* 20/5 (2021), in 10.1007/s11097-021-09754-x [19-10-2023], 957–970. Hutto and Myin cite A. BUCCELLA, «Enactivism and the "problem" of perceptual presence», *Synthese* 198/S1 (2021), in 10.1007/s11229-020-02704-1 [26-1-2024], 159–173, but the duo has also raised critiques of Noë in HUTTO – MYIN, *Radicalizing Enactivism*, in particular 23-32.

[950] A. NOË, *Learning to Look*, Oxford University Press 2021.

[951] NOË, *Varieties of Presence*, 23 and 23n7.

happen in us. We achieve it. Or rather, we enact it"[952]. To enact, then, means to bring forth presence by means of knowledge of sensorimotor dependencies and experience. Later in the article, Noë offers an insight into why he might have avoided the term *enactivism* in the past:

> A final point: experience, according to this understanding of the enactive approach, is *creative*. It is an activity of making, assembling, or putting together. Thompson and Varela (Thompson, 2007; Varela et al., 1991) would have it that it is the *world* that is brought forth through enaction. I have always resisted this. We make *experience*, not the world. But I now think that the difference between my view and theirs is not so great after all and I am inclined to agree with them, at least to this extent. Experience, as I understand it, is not something that happens inside us; it is rather something we do; indeed, it is something we do in the situations we find ourselves in, but that also, crucially, contributes to making those situations the situations they are. To enact ourselves in the world is to alter the world and so, in that sense, to make it[953].

The world which is enacted is what Noë calls the environment or the perpetual world: "the environment is the physical world *as it is inhabited by the animal*. The perceptual world (the environment) is not a separate place or world; it is the world thought of from our standpoint (or from any animal's standpoint)"[954]. It is for this reason that:

> Different animals inhabit different perceptual worlds even though they inhabit the same physical world. The sights, sounds, odors, and so on that are available to humans may be unavailable to some creatures…. The qualities themselves are not subjective in the sense of being sensations. We don't bring them into existence. But only a very special kind of creature has the biological capacity, as it were, to *enact* them[955].

Noë's distinction echoes the notion of von Uexküll's *Umwelt*; an animal is suited to its environment, and hence brings forth or enacts experiences and presences that are possible because of its biological features which enable or provide certain possibilities of engagement. It could be said that an animal, because of its biological capacities, can *bring forth* or enact the meaning of certain environmental features or dispositions. While Noë originally shied away from this concept of creating the world,

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[952] NOË, «The enactive approach: a briefer statement», 958.
[953] NOË, «The enactive approach: a briefer statement», 961. Emphasis in original.
[954] NOË, *Action in perception*, 155.
[955] NOË, *Action in perception*, 156. Emphasis in original.

he now recognizes that in a sense, this enacting of meaning is to create a *perceptual* world, one that exists for a particular perceiver but not for others.

Noë-ian insights for Aquinas and Fabro

Having laid the foundations with our discussion of Noë's sensorimotor enactivism, let us turn our attention to the dialogue between Fabro's Aquinas and Noë. We have already mentioned several principles and philosophical presuppositions in Noë's work; now we can consider six points of sensorimotor enactivism which could be integrated into the framework of a Thomistic epistemology. These six points are: 1) intramodal and intermodal sensation; 2) multi-sensory integration; 3) memories and false memories; 4) the *experimentum*; 5) affective passions (love, pain, fear, and anxiety), and 6) plasticity.

It should be noted that, given the methodological concerns that arise from the enactivist project, as well as our desire to avoid a repetition of the methodology of chapter three, here our focus will be neuroscientific. In other words, we will examine in a particular way the *molar* or *macroscopic* structures that emerge within the nervous system, and particularly the brain, as a result of the interaction with the environment; such structures include neural networks and other developments. This will give our discussion a level of scientific rigor that otherwise would not be obtained, and allows us to "objectivize" the data, all the while remaining faithful, in large part, to the enactivist project.

Intramodal and intermodal sensation

In Chapter 3 of *Action in Perception*, Noë examines the different modalities of the external senses according to philosophers. On the one hand, he approves of *qualia theory* (which maintains that "sensory modalities differ qualitatively") since perceivers are usually able to distinguish whether they are seeing an object or touching it[956]. On

[956] NOË, *Action in perception*, 106.

the other, he also finds the Aristotelian (and likewise Thomistic) notion of *proper objects* of the senses to be reasonable. This view "locates the differentia of sensory modalities in their representational content, rather than in their qualitative character"[957]. However, Noë finds it difficult to reconcile the proper object view with the fact that some properties can be sensed by different senses (i.e., the Aristotelian common sensibles).

For Noë, the enactivist view of sensation incorporates aspects of both qualia theory and proper objects. In his words:

> What differentiates the senses, on the enactive approach, is that they are each modes of awareness, in the first instance, of different structured *appearance* spaces. Sight and touch are ways of encountering one and the same environment. But they differ in that, in each case, the encounter with the environment is an encounter with different patterns of appearance…. Sensory modalities may in this way be individuated by means of their corresponding appearance structures (or objects). That is to say, we can endorse Aristotle's view that each of the senses has proper objects. The proper object of each sense is the type of appearance (looks, sounds, etc.) that is made available uniquely to that sense[958].

In other words, sensation depends on both the subject and the object. After Noë contends that "the senses are modes of awareness of one and the same environment as mediated by different patterns of sensorimotor contingency", he notes: "From the side of the object, what differentiates seeing and touching are their different objects (say, looks as opposed to feels). But from the side of the perceiver, what differentiates seeing from touching are the different patterns of activity in which seeing and touching respectively consist"[959].

However, Noë also indicates the following caveat: "At a low level of characterization, the [sensory] modalities are radically different, implicating distinct forms of sensorimotor pattern. It is possible to abstract from these differences, however"[960]. In other words, Noë emphasizes an underlying similarity between the various modes of sensation. As Noë continues in the aforementioned text, he indicates

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[957] NOË, *Action in perception*, 106.
[958] NOË, *Action in perception*, 107. Emphasis in the original.
[959] NOË, *Action in perception*, 109.
[960] NOË, *Action in perception*, 110.

the TVSS (tactile-visual substitution system) pioneered by Bach-y-Rita. In this system, "a head-mounted camera that is wired up to electrodes (say, on the tongue) in such a way that visual information presented to the camera produces patterns of activation on the tongue"[961]. After a few hours, "it becomes possible … to make quasi-visual perceptual judgments", so much so that subjects even experience some visual illusions[962]. These judgments include "the number, size, spatial arrangement, and so forth of objects at a distance from themselves across the room. Based on this perception, they are enabled to reach out and grasp, to make swatting or grabbing movements of the hand"[963]. Indeed, in his *Out of Our Heads*, Noë explains the results this way:

> What [Bach-y-Rita] found was that when the camera was mounted on the head or the shoulder of the person, visual information presented to the camera that in turn produced tactile sensations on the body enabled the person to make judgments about the size, shape, and number of objects placed on the other side of the room. By deploying the substitution system, the blind person was able to reach out and pick up objects, and even swat at a ball successfully with a Ping-Pong paddle. This is astounding. In effect, blind subjects using a tactile-visual substitution system can see! Somehow, for a person who has a few hours to get used to the apparatus, a series of tactile sensations on the leg or stomach add up to a way of seeing[964].

In effect, the blind see through touch; this is the result of a fundamental similarity of the sensory modalities. It is this more abstract and general form of sensation that "abstracts" from the different sense modalities. Of course, the blind utilizing the TVSS do not "see" different shades of color or the intensity of light by means of touch. This sense modality is too specific a pattern for an organ other than the eyes to pick up. Noë explains the situation this way:

> Tactile-visual sensory substitution is a full-fledged, bona fide example of the kind of transformation in perceptual consciousness that we saw with Sur's ferrets. Stimulation of the skin gives rise to neural activity in touch areas of the brain (the so-called somatosensory cortex). But for a person who has adapted to the sensory substitution

[961] NOË, *Action in perception*, 111.

[962] NOË, *Action in perception*, 111. The example given is the waterfall illusion. This illusion entails staring at a moving object, then shifting attention to a stationary one. The result is the illusion of perceived movement of the stationary object.

[963] NOË, *Action in perception*, 111. It seems that what is perceived via the system, namely, size, number, and movement, are Aristotelean common sensibles.

[964] NOË, *Out of Our Heads*, 57.

> system, activation is somatosensory touch areas gives rise not the experience of being touched … but to a visual experience of the scene in front of him[965].

However, it might be more accurate to affirm that there is a more general form that is accessible to multiple senses, and hence there can be a substitution. These more general and abstract forms were known to Aristotle and Aquinas as "common" sensibles, precisely because they were modalities common to several senses.

Another point of research Noë finds important for understanding sensation is the work of Mriganka Sur. Sur's work with ferrets which showed the malleability of the connection between sensory neurons and the associated brain cortexes[966]. Sur "re-wired" the ferrets' brain so that the visual cells sprouted into the auditory cortex; in effect, the surgical intervention and re-wiring allowed the ferrets "to see with their auditory brains"[967]. For this reason, Noë concludes that "there isn't anything special about the cells in the so-called visual cortex that makes them visual. Cells in the auditory cortex can be visual just as well. There is no necessary connection between the character of experience and the behavior of certain cells"[968]. This enables Noë to conclude a part of the brain is not "necessarily" auditory or visual, but rather the sort of information which would be the feed-in from sensory systems, and feed-back from motor systems, makes a certain part of the brain handle a certain species of sensation.

In short, Noë maintains the different modalities of sensation depend on the different specific sensorimotor patterns of brain activation in perceiving the environment. Sometimes common modalities can be found that enable sensory substitution, but it is also clear that it is engagement with the environment that is at least partially responsible for the development and differentiation of brain structures. It must also be noted, however, that there is a general blueprint for development that

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[965] NOË, *Out of Our Heads*, 57.

[966] See NOË, *Out of Our Heads*, 53-65, but also the earlier S. HURLEY – A. NOË, «Neural Plasticity and Consciousness», *Biol Philos* 18/1 (2003), in 10.1023/a:1023308401356 [26-1-2024], 131–168.

[967] NOË, *Out of Our Heads*, 53.

[968] NOË, *Out of Our Heads*, 54.

takes place in the brains of organisms. As a result, these regions tend to become consolidated and form regions or modules that are responsible for particular functions.

Multi-sensory integration

After the different sensory modalities have been examined, how they are integrated must be considered. This, in turn, requires examining *attention* and *multi-sensory input*, as well as *amodal perception.*

Attention

To argue against the notion that we simply make a very detailed model of reality in our minds, Noë make frequent reference to the various sorts of "blindness" that can be experienced. We are frequently victims of "difference blindness" wherein we do not notice the differences of a before and after (Noë frequently gives the example of stealing a French fry from a distracted friend's plate; typically the friend is unable to note the difference)[969]. However, experiments have shown that we are also subject to "change blindness", wherein we are "blind to changes even when they occur directly in front of us in full view"[970]. With these points, Noë indicates that "vision is, to some substantial degree, attention-dependent"[971]. However (and this is the central direction of the chapter), these studies also indicate that perception and perceptual experience is fragmented; although it might appear continuous to us, we are perpetually in contact only with fragmentary bits and pieces of the world. How can our experience of the world as continuous be explained? For this, we must consider *multi-sensory input* as well as Noë's considerations of *amodal perception*.

Multi-sensory input

By multi-sensory input, we have in mind, in Thomistic terms, the unifying work performed by the common sense. Is there some element in Noë's sensorimotor

[969] See NOË, *Out of Our Heads*, 51.
[970] NOË, *Out of Our Heads*, 51.
[971] NOË, *Out of Our Heads*, 52.

enactivism that has such a function of uniting the various sense modalities? To address this, we must first recall the difference between sensation and perception, which follows from the distinction between sense data and appearance, as maintained by Noë. In his words: "Appearances are not merely sense data; they are aspects of how things are. Perception is an activity of learning about the world by exploring it. In that sense, then, perception is mediated by appearance"[972]. In other words, there is a sense in which the question of uniting sense data into one object does not arise for sensorimotor enactivism. Subjects detect appearances, which are based on sense data but not the same as it. The appearances the subject detects are inherently united in an object in the world. Isolated sense data is precisely that: isolated, and so gives no information and provides no experience. Appearances necessarily refer to an object, and hence they are not, and cannot be, isolated from each other. Thus, there is a sense in which the integration is not given by the perceiver; it is inherent in the object perceived.

However, there is a sense in which sensorimotor enactivism does speak of an "integration" of different appearances. In *Action and Perception*, Noë cites several experiments wherein patients wore glasses that inverted the right and left visual fields. These goggles did not affect the perception of light or dark, nor of color. Studies have shown that the subject adapts to these goggles in three stages. The first is of *inverted content*: the subject sees, for instance, their left hand as if it were their right, but "it continues to *feel* as if it is on the left"[973]. Likewise, "when you snap your fingers, the sound of your 'hand on the right' seems to come from the left"[974]. This stage is unstable, and resolves to the second stage, wherein "visual experience 'captures' auditory and proprioceptive experience, resolving conflicts between these sensory modalities in favor of vision"[975]. In other words, "the object on the left not only looks as if it is on the right, *but it now sounds and feels as if it is too*"[976]. However, if the subject is "allowed (indeed required) to actively engage with and explore their environment, a

[972] NOË, *Action in perception*, 165-166.
[973] NOË, *Action in perception*, 9.
[974] NOË, *Action in perception*, 9.
[975] NOË, *Action in perception*, 9.
[976] NOË, *Action in perception*, 9. Emphasis added.

third stage of adaption comes about in which experience comes to 'right itself'"[977]. In this stage, objects that are on the left side look as though they are on the left, "even though", as Noë notes, "they continue, as before, to activate retinal and brain areas associated with right-placed stimuli"[978]. Noë summarizes the importance of these experiments as follows:

> Genuine perceptual experience depends not only on the character and quality of stimulation, but on our exercise of sensorimotor knowledge. The disruption of this knowledge does not leave us with experiences we are unable to put to use. It leaves us without experience. For mere sensory stimulation to constitute perceptual experience—that is, for it to have genuine world-presenting content—the perceiver must possess and make use of *sensorimotor knowledge*….
>
> Kant ([1781-1787] 1929) famously said that intuitions without concepts are blind. The present point is that intuitions—patterns of stimulation—without knowledge of the sensorimotor significance of those intuitions, are blind. Critically, the knowledge in question is practical knowledge; it is know-how. To perceive you must be in possession of *sensorimotor bodily skill*[979].

Hence, to speak of perception and perceptual experience is already to speak of an integrated, united object; mere stimulations or patterns of stimulation do not provide experience. However, the reason *why* we perceive these objects as united wholes is because of sensorimotor knowledge. Thus, we could say that the world presents us with objects that are united wholes; it is not that our minds need to unite the objects. However, at the same time, the reason why we can *perceive* these wholes as they are in the world is because of sensorimotor skills and knowledge.

Amodal perception

A similar question could arise regarding "imaginative completion" of an object that is not completely visual or able to be perceived in its entirety. Noë considers the examples of a cat partially hidden by a fence, and a bottle held in the hand with eyes closed. How can we account for our knowledge, or as Noë words it, "our *perceptual sense* of their presence", that is, the presence of the whole cat and the whole bottle[980].

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[977] NOË, *Action in perception*, 9.
[978] NOË, *Action in perception*, 9.
[979] NOË, *Action in perception*, 10-11. Emphasis in original.
[980] NOË, *Out of Our Heads*, 60.

He contends that the cat and the bottle are both *perceptually present as wholes*, emphasizing that this presence is not simply a knowledge of past cats and bottles, nor a belief about their presence. Regarding these, Noë contends:

> One way we might try to explain this phenomenon is by observing that to experience the cat or the bottle as voluminous wholes requires that you draw on your knowledge of what bottles are, or what cats are. You bring to bear your conceptual skills. This is doubtless right. To experience the cat *as* a cat, or *as* a whole, is to experience what you see as falling under concepts. But this can't be the whole story. For what we want is an account not of our *thought* or *judgment* or *belief* that, say, there is a whole bottle there, or a whole cat there…. Crucially—and this is a phenomenological point—the cat and the bottle seem present as wholes, *perceptually*…. We do not merely *think* that these features as present. Indeed, this sense of perceptual presence does not depend on the availability of the corresponding belief[981].

The answer, proposes Noë, is what psychology calls *amodal perception* and what Aristotle might have considered as a function of the imagination. In other words, there is no actual perception of the missing pieces; we experience their *absence* or, in the words of Noë, these features "are *perceptually* present without being actually perceived"[982]. We "know" that we could access those features, even though at present we do not: "My sense of the presence of the whole cat behind the fence consists precisely in my knowledge, my implicit understanding, that by a movement of the eye or the head or the body, I can bring bits of the cat into view that are now hidden"[983]. Varying degrees of perceptual presence are simply that: matters of degree[984].

Memories and false memories

Enactivists have also attempted to explain how memory works in terms of their principles. O'Regan and Noë demonstrate the general enactivist tendency by frequently

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[981] NOË, *Out of Our Heads*, 60.
[982] NOË, *Out of Our Heads*, 61.
[983] NOË, *Out of Our Heads*, 63-64.
[984] See NOË, *Out of Our Heads*, 65: "In general, these considerations reveal that the difference between the sense of the perceptual presence of something strictly unseen (the back of the tomato) and the sense of the (nonperpetual) presence of an unseen item (the room next door) are matters of degree".

referring to the world as "an outside memory"[985]. In other words, there is no need to have an internal re-presentation of the external world; the world itself is its best model:

> Indeed, there is no "*re*"-presentation of the world inside the brain: the only pictorial or 3D version required is the real outside version. What *is* required, however, are methods for probing the outside world – and visual perception constitutes one mode via which it can be probed. The experience of seeing occurs when the outside world is being probed according to the visual mode, that is, when the knowledge being accumulated is of the three kinds described above, that are typical of the visual modality.
>
> Thus, as argued in O'Regan (1992), it could be said that the outside world acts as an *external memory* that can be probed at will by the sensory apparatus[986].

Denis Brouillet's 2020 article «Enactive Memory» provides a clear summary of the different developments in the understanding of memory within the enactivist school[987]. In explaining the enactivist understanding of memory, he notes:

> Indeed, considering that our memories may be enacted is to say that they are the product of the actions we take to account for them in a given situation. In other words, this means accepting that our memories are no longer considered as the recovery, *sensu stricto*, of an event that happened in the past, but rather as the product of a cognitive elaboration constructed here and now. To paraphrase Neisser (1996), memories are a kind of reflection of the dynamics of cognition; they emerge from this dynamic. So, memories are not static; based on the synergy between previous experiences and present experience, they are continuously revised[988].

In particular, Brouillet notes several models of memory that appear compatible with the enactivist position. The *single memory models* "postulate that the experiences of our interactions with the environment are stored in a multi-sensory way and distributed across the entire brain (Hintzman, 1986; Whittlesea, 1987; Versace et al., 2014)"[989]. The resulting memory traces, contends Brouillet, are the fruit of the "coupling between the recovery situation and a set of episodic traces activated on the

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[985] See J. K. O'REGAN – A. NOË, «A sensorimotor account of vision and visual consciousness», 947. The phrase itself dates back to an earlier work by O'Regan: J. K. O'REGAN, «Solving the "real" mysteries of visual perception: The world as an outside memory», *Canadian Journal of Psychology / Revue canadienne de psychologie* 46/3 (1992), in 10.1037/h0084327 [8-7-2024], 461–488.

[986] J. K. O'REGAN – A. NOË, «A sensorimotor account of vision and visual consciousness», 947.

[987] D. BROUILLET, «Enactive Memory», *Front. Psychol.* 11 (2020), in 10.3389/fpsyg.2020.00114 [8-7-2024].

[988] BROUILLET, «Enactive Memory», 1.

[989] BROUILLET, «Enactive Memory», 1.

basis of their similarity to the characteristics of the recovery episode…. The consequence, the memories are not recovered; they emerge in the present situation"[990]. Such a system of memory traces allows for new experiences to be incorporated into previous traces, as well as for previous traces to be modified by new experiences[991]. As a result, "storage and recovery cannot be considered separately"[992]. Brouillet notes that several experiments have confirmed that motor movements, and in particular the movement of the eyes, assist in recalling information.

More recently, Marta Caravà has indicated the need to address forgetting in the enactivist understanding of memory[993]. In her words, "forgetting is not best explained as the passive loss of mnemonic representations but rather as an active and context-dependent process that prevents the subject from engaging in imaginative simulations that target past experienced events"[994]. This happens when certain neural traces lose their priority, and others are strengthened; as a result, the impetus to draw on a past event or memory instead activates different neural traces, and the "old" memory is forgotten, meaning, the neural trace falls into disuse.

This notion of neural traces also explains false memories, particularly in the work of Charles J. Brainerd and colleagues[995]. A false memory is a memory of something that was never experienced. Such "memories can be suggested (e.g., by

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[990] BROUILLET, «Enactive Memory», 1.

[991] Some are even content to see memory traces as "contentless", and thus in accord with the demands of radical enactivism. See K. MICHAELIAN – A. SANT'ANNA, «Memory without content? Radical enactivism and (post)causal theories of memory», *Synthese* 198/S1 (2021), in 10.1007/s11229-019-02119-7 [8-7-2024], 307–335.

[992] BROUILLET, «Enactive Memory», 2.

[993] See M. CARAVÀ, «Enactive Memory», (2023), in 10.1007/978-3-030-93789-8_53-1 [8-7-2024], 1–8.

[994] CARAVÀ, «Enactive Memory», 5.

[995] See V. F. REYNA – J. C. CORBIN – R. B. WELDON – C. J. BRAINERD, «How fuzzy-trace theory predicts true and false memories for words, sentences, and narratives.», *Journal of Applied Research in Memory and Cognition* 5/1 (2016), in 10.1016/j.jarmac.2015.12.003 [8-7-2024], 1–9; C. J. BRAINERD – D. M. BIALER – M. CHANG, «Fuzzy-trace theory and false memory: Meta-analysis of conjoint recognition.», *Journal of Experimental Psychology: Learning, Memory, and Cognition* 48/11 (2022), in 10.1037/xlm0001040 [8-7-2024], 1680–1697; C. J. BRAINERD – V. F. REYNA, «Fuzzy-Trace Theory and False Memory», *Curr Dir Psychol Sci* 11/5 (2002), in 10.1111/1467-8721.00192 [8-7-2024], 164–169.

viewing family photographs), imported from one context in which they did occur to another in which they did not occur (source misattribution e.g., when events from a movie are remembered as personally experienced), or, most commonly, they can represent semantic and inferential extensions of experienced events", as when a person infers that another went to work because they left the house in a suit and tie with a briefcase[996]. In other words, these false memories, in the words of Brouillet, "emerge in the present situation"[997]. It is the context that allows for these false memories to come about.

His work has posited that there are two sorts of neural traces formed, and these explain the basis for the formation of false memories: verbatim traces, with a precise content, and gist traces, that recall more or less, or the "gist" of events, details, or lists. The confusion of these traces is what produces false memories. In other words, as seen earlier, memories emerge in a present situation (e.g., suggestions from another person, a visual cue); a false memory is one that emerges from a context, such as a movie or a partial understanding of events, but with an erroneous association as personally lived or experienced. Brainerd's work emphasizes that spontaneous false memories are often based on meaning; meaningless associations do not form false memories, whereas similar linguistic features do[998]. In other words, as Brainerd contends, "artificial distinctions between studies of true memory as opposed to false memory are no longer tenable. Indeed, accounts of memory that exclude consideration of meaning-related 'false' memories are not only incomplete, they are also misleading"[999]: by this, Brainerd indicates that so-called "false" memories are false only in the sense that they do not correspond to the subject's actual lived experience. However, the production of such memories results from the normal process of forming memories and the dynamics

[996] V. F. REYNA – J. C. CORBIN – R. B. WELDON – C. J. BRAINERD, «How fuzzy-trace theory predicts true and false memories», 2.
[997] BROUILLET, «Enactive Memory», 1.
[998] V. F. REYNA – J. C. CORBIN – R. B. WELDON – C. J. BRAINERD, «How fuzzy-trace theory predicts true and false memories», 3.
[999] V. F. REYNA – J. C. CORBIN – R. B. WELDON – C. J. BRAINERD, «How fuzzy-trace theory predicts true and false memories», 1.

of the neural traces that store and modify them; a particular present situation causes these false memories to emerge.

The experimentum

How is the value of an object determined according to enactivism? Earlier mention was made of the Gibsonian notion of affordances, and the enactivist rejection of that notion if it is understood as a strictly environmental property. The authors of *Embodied Mind* phrased their opposition this way: "In a nutshell, then, whereas Gibson claims that the environment is independent, we claim that it is enacted (by histories of coupling). Whereas Gibson claims that perception is direct detection, we claim that it is sensorimotor enactment"[1000].

Noë "reformulates" Gibson's notions in light of enactivism: "To see that something is flat is precisely to see it as giving rise to certain possibilities of sensorimotor contingency. To feel a surface as flat is precisely to perceive it as impeding or shaping one's possibilities of movement. We can put the point picturesquely by saying that when we perceive, we perceive in an idiom of possibilities for movement"[1001].

Noë then continues with two paragraphs that, although brief, give great insight into how affordances are perceived, learned, and used:

> Affordances are animal-relative, depending, for example, on the size and shape of the animal. It is worth nothing that they are also skill-relative. To give an example, a good hitter in baseball is someone for whom a thrown pitch affords certain possibilities of movement. The excellence of the hitter does not consist primarily in having excellent vision. But it may very well consist in a mastery of sensorimotor skills, the possession of which enables a situation to afford an opportunity for action not otherwise available.
>
> According to the enactive view, there is a sense, then, in which *all* objects of sight (indeed, all objects of perception) are affordances. To experience a property is, among other things, to grasp its sensorimotor profile. It is to experience the object as determining possibilities of and for movement[1002].

[1000] VARELA – THOMPSON – ROSCH, *Embodied Mind, Revised Edition*, 203-204.
[1001] NOË, *Action in perception*, 105.
[1002] NOË, *Action in perception*, 106.

In these paragraphs, we see Noë, first, correct what was originally conceived as a flaw of Gibson's affordances: the enactivist project began assuming that affordances were strictly environmental, whereas Noë here interprets them as relative to the animal perceiving. Likewise, Noë adds the consideration that to perceive affordances not only depends on the *body* that a perceiver has (e.g., the possibility of swinging a baseball bat requires arms), but also the "mastery of sensorimotor skills"[1003]. For this reason, a six-year-old child starting Little League practice, or even a twenty-four-year-old basketball player, will not be afforded the possibilities that a thrown ball would afford to Spencer Torkelson, the twenty-four-year-old MLB player drafted 1st by the Detroit Tigers in 2020.

Hence, what an object affords depends on sensorimotor contingencies as well as on memory (which, in turn, also relies on sensorimotor contingencies). It would seem, then, that affordances or values are retained as part of neural traces within the brain, since these retain, not only the past experiences, but also the sensorimotor aspects. Sometimes this development is referred to as "sense-making" because objects gain values and "make sense" to a perceiver[1004].

Some authors, including Shaun Gallagher, have increasingly referred to the notion of *affordance space*. Whereas the "landscape of affordances" refers to "the total ensemble of available affordances for a population relative to a form of life", and the "field of affordances" makes reference "the affordances that stand out as relevant for a

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[1003] In *Action in Perception*, Noë argues that if a person knows how to *x*, it follows they *can x*. In his words (arguing against Stanley and Williamson's contention that knowledge does not necessarily require the ability to perform): "If a ski instructor can't do the jump, then she doesn't know how to do it either, even if she might be able to teach someone else how to do it. What she knows is how to teach someone to do it, not how to do it. She knows how the jump is done, but not how to do it. Sadly, the same is true of the pianist [who lost his arms in an accident]. He may retain all sorts of cognate knowledge—relevant to the description, critical evaluation, or the teaching of how to play a piece of music—but when he lost his arms, he lost his know-how. For the knowledge was, precisely, arm-dependent" (*Action in Perception*, 120-121).

[1004] As Giovanna Colombetti explains it: "The enactive notion of *sense making* … refer[s] to the capacity of all living systems to enact a meaningful world from a point of view". See G. COLOMBETTI, *The Feeling Body*, 15.

particular individual in a particular situation; i.e., the multiplicity of affordances that solicit the individual", the *affordance space* falls somewhere in the middle of the two:

> An affordance space includes the full range of possible affordance fields relative to an individual, including the current affordance field plus any possible changes in that field due to changes in physical or cognitive skills or environment. The affordance space for any individual is defined by *evolution* (e.g., the fact that she has hands), *development* (her life- stage—infant, adult, aged) and *social and cultural practices* (including normative constraints), as well as the individual's experience. All of these factors enable and constrain the individual's action possibilities[1005].

If we refer back to the previous section, it would seem that the value of an object depends on a myriad of factors. All of these, however, are incorporated in a particular neural trace or several neural traces, which are consistently modified by interaction with the environment and through the development of sensorimotor skills. In some cases, these skills would *enable* certain behaviors or interactions, and at other times would *constrain* them.

Language as sensorimotor schema

For humans, a very particular sort of sensorimotor schema arises: language. In *Out of Our Heads*, Noë dedicates several sections to explaining language as a way that our minds are extended and interact with the environment. After noticing that different language speakers also have differing mathematical abilities, a feature Noë traces to different linguistic systems for expressing numbers[1006], he proposes the following notion of languages:

[1005] S. GALLAGHER, «The Therapeutic Reconstruction of Affordances», *Res Phil.* 95/4 (2018), in 10.11612/resphil.1723 [9-7-2024], 722.

[1006] NOË, *Out of Our Heads*, 87-88: "We have been considering ways in which body and, in effect, mind are extended by the use of tools and other artifacts…. There is no more robust technology for the extension of human thought beyond the limits of the internal, private resources of an individual than language…. Without language it would be impossible, surely, to think about the question of whether I had breakfast the morning of November 1, 1974, for it is language itself, with its implicit system for dating, counting, and conceptualizing time, that provides the very medium in which such a thought can take form. No nonlinguistic brute could fashion that thought—that is, that particular relation to the world—for it is a relation that is linguistically structured…. According to the French neuroscientist Stanislas Dehaene, all European languages are at a disadvantage when compared with Mandarin; he argues that the

> The point is that just as a rake extends our reach and has the potential to extend our body schema, so language extends our capacities for thought and therefore can be treated as extending our mind schema. Insofar as language is itself socially manufactured and shared by linguistic communities, then to that extent our cognitive powers require for their very exercise the existence of a sociolinguistic environment. Our minds cross out of the skull and get supported in a shared sociolinguistic scaffolding[1007].

Shortly thereafter, Noë contends that while learning a language is to acquire knowledge, such knowledge is not knowledge that "such and such is the case; rather, it is the acquisition of a set of abilities to use words and handle things. In a range of cases, linguistic knowledge depends on our active engagement with our surroundings"[1008]. Noë gives the example of a resident of Zinder, Niger, who would typically use several languages: Fulani at home, Hausa at the market, and French for the news. These situations call for different languages, and the speaker would not use French in the market, nor Hausa at home, just as a teenager would adjust their language and vocabulary when speaking with adults as opposed to speaking with their peers. As a result, he concludes "this fact—that language and activity are interwoven; that languages are particular aspects of our engagement with situations—is something we constantly encounter"[1009].

While Noë maintains that language is a sort of "mind schema", others have explicitly referred to language as a sort of sensorimotor schema. The notion that language could be considered as a sensorimotor schema is not new. For instance, Gehlen argues that "language is an extension of a system of deeply rooted interrelationships of movement and sensation"[1010]. Per Gehlen, the importance of language lies particularly in its ability to exonerate man from the sensory chaos of the world. In his words, "Language relieves motor skills: we can respond to things in sound and so no longer need to engage in action…. When relief from the pressures of the

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Chinese are on the whole better and faster at mental arithmetic and that the explanation lies in their linguistic system for talking about numbers".

[1007] NOË, *Out of Our Heads*, 88.
[1008] NOË, *Out of Our Heads*, 91.
[1009] NOË, *Out of Our Heads*, 103.
[1010] GEHLEN, *Man*, 11.

immediate situation is obtained by mastering it verbally and restraining action, it becomes possible to initiate actions independently of the actual situation, based purely on 'imagined' situations represented through language"[1011].

That our language is rooted in bodily movements is a thesis of Lakoff and Johnson's book, *Metaphors We Live By*[1012]. The authors note that "most of our fundamental concepts are organized in terms of one or more spatialization metaphors" with an internal and external coherence among the different metaphors which are themselves "rooted in physical and cultural experience"[1013]. For instance, *happy*, *good*, and *rational* are related to "up," whereas *sickness*, *bad*, and *emotional* are related to "down"[1014].

Gehlen's thought goes even further: as Karl-Siegbert Rehberg explains in his introduction to Gehlen's *Man*:

> The fundamental model Gehlen proposes [in this text] for language, as well as for all actions, is that of the "circular process," wherein functions direct their course by referring back to themselves. It is in language that this increase in the intensity of human capabilities, based on their reciprocity and self-motivated reinforcement, is demonstrated most clearly. Language thereby becomes the fundamental model for human interaction in the world and for man's experience of himself, as well as a model for action, which in this sense is always "analogous to language" (*sprachmässig*)[1015].

In other words, for Gehlen, language comes to dominate the life of man: it is his model for interacting with the world, for self-experience, and action. Man is a linguistic being: it is language that permits him to abstract from or exonerates him from the here-and-now and language that permits him to return to that here-and-now so as

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[1011] GEHLEN, *Man*, 186.

[1012] G. LAKOFF – M. JOHNSON, *Metaphors We Live By*, University of Chicago Press, Chicago 1980.

[1013] LAKOFF – JOHNSON, *Metaphors We Live By*, 17-18.

[1014] See chapter 4, "Orientational Metaphors". Consider some of the examples offered in this chapter: "He's at the *peak* of health. Lazarus *rose* from the dead. He's in *top* shape" (15); "He is *high*-minded. She has *high* standards. She is *upright*" (16); "The discussion *fell to the emotional* level, but I *raised* it back *up to the rational* plane. We put our *feelings* aside and had a *high-level intellectual* discussion of the matter. He couldn't *rise above* his *emotions*" (17). Emphasis in the original.

[1015] GEHLEN, *Man*, xix.

to act and interact with it. Language is the particular means by which man returns to the concrete.

Furthermore, the understanding of language as sensorimotor schema also finds support in recent neuroscientific studies. The work of Sarah Anderson and Michael Spivey gives an excellent summary of the state of research in 2008, noting "that motor representations and actions can influence language processing in predictable ways"[1016]. Likewise, more recent studies have confirmed that there is a close relationship between language and sensorimotor skills, as seen, for instance, in «Language sensorimotor specificity modulates the motor system»[1017]. In this study, Marino and his team examined the stimulation that takes place in sentences where different verbs are paired with consistent or impossible objects. Nevertheless, current research continues to refine the different models explaining the complex relationships between sensorimotor movements and language[1018].

It is also worth noting that research has shown that language itself affects perception. Studies have shown that speakers of different languages remember visual scenes and process visual information differently[1019]. Likewise, the learning of another language effects the way that the mind processes information[1020]. For instance, García,

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[1016] S. E. ANDERSON – M. J. SPIVEY, «The enactment of language: Decades of interactions between linguistic and motor processes», *Lang Cognition* 1/1 (2009), in 10.1515/langcog.2009.005 [9-3-2024], 87–111.

[1017] B. F. M. MARINO – V. GALLESE – G. BUCCINO – L. RIGGIO, «Language sensorimotor specificity modulates the motor system», *Cortex* 48/7 (2012), in 10.1016/j.cortex.2010.12.003 [10-3-2024], 849–856.

[1018] See, for instance, M. MAIERON – D. MARIN – F. FABBRO – M. SKRAP, «Seeking a bridge between language and motor cortices: a PPI study», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00249 [9-3-2024]: the group concluded that "the lack of functional connectivity changes between the left inferior frontal gyrus and M1 would support the view that sensory-motor activity is not necessary but rather accessory to linguistic processing" (17).

[1019] M. FERNANDEZ-DUQUE – S. HAYAKAWA – V. MARIAN, «Speakers of different languages remember visual scenes differently», *Sci. Adv.* 9/33 (2023), in 10.1126/sciadv.adh0064 [9-3-2024]; S. CHABAL – V. MARIAN, «Speakers of different languages process the visual world differently.», *Journal of Experimental Psychology: General* 144/3 (2015), in 10.1037/xge0000075 [9-3-2024], 539–550.

[1020] See, for instance, H. SOLEIMANI – M. RAHMANIAN, «The Effect of Bilingualism and Trilingualism on Metacognitive Processing: Detrimental or Beneficial?», *J Psycholinguist Res* 47/4 (2018), in 10.1007/s10936-018-9563-x [10-3-2024], 803–815; HERNANDEZ, A. - LI, P. -

Muñoz, and Kogan found that during the process of simultaneous interpretation, "bilinguals appear to exhibit cognitive changes that are relatively fast in their emergence, restricted to distinctly taxed functions, and independently operative in verbal and executive domains"[1021]. Terrence W. Deacon writes in *The Symbolic Species*, language could be compared to a parasite or a virus in that it has evolved together with humans:

> We should not be surprised to find complex human adaptations to language on the one hand, whose purpose is to ensure that language is successfully replicated and passed from host to host, and language adaptations to children on the other, whose purpose is to make languages particularly "infective" as early as possible in human development. Modern humans need the language parasite in order to flourish and reproduce, just as much as it needs humans to reproduce. Consequently, each has evolved with respect to the other[1022].

Deacon proposes that language provided humans with an evolutionary advantage, as it allowed for the transfer of information needed for survival. In this way, then, we can see an echo of Gibson's view of language as a means of communicating affordances. However, there is more: Deacon contends that language has become the distinguishing mark of humans, such that it affects the way we perceive the world:

> We are not just a species that uses symbols. The symbolic universe has ensnared us in an inescapable web. Like a "mind virus," the symbolic adaptation has infected us, and now by virtue of the irresistible urge it has instilled in us to turn everything we encounter and everyone we meet into symbols, we have become the means by which it unceremoniously propagates itself throughout the world[1023].

It is worth noting that current neurobiological research has indicated several features regarding language and perception. For instance, in their study regarding mapping the connections seen in life-long monolingual speakers of English, German, or Chinese, Tomás Goucha and his team "found that although the major white matter

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MACWHINNEY, B., «The emergence of competing modules in bilingualism», *Trends in Cognitive Sciences* 9/5 (2005), in 10.1016/j.tics.2005.03.003 [9-3-2024], 220–225.

[1021] A. M. GARCÍA – E. MUÑOZ – B. KOGAN, «Taxing the bilingual mind: Effects of simultaneous interpreting experience on verbal and executive mechanisms», *Bilingualism* 23/4 (2020), in 10.1017/s1366728919000063 [10-3-2024], 729–739.

[1022] T. W. DEACON, *The symbolic species*, W W Norton & Company Incorporated, New York 1997, 112.

[1023] DEACON, *The symbolic species*, 436.

fibre pathways comprising the language network are present in all participants, the strength of the connections along the different neural pathways is modulated according to the specific characteristics of the speaker's mother tongue"[1024]. The native language used produces a very particular trace which, after their study, the researchers were able to use to predict a person's native language after they had obtained the neural trace scans. An even more complete and recent study can be found in the review article, «Neural reuse of action perception circuits for language, concepts and communication» by Friedemann Pulvermüller. Pulvermüller summarizes years of research and hundreds of studies as follows, clearly noting the neurobiological connections between action, perception, and language:

> Structural and functional principles and knowledge from neuroscience, in particular about cortical connectivity and correlation learning, are important for understanding and modelling language mechanisms at the level of neuronal circuits. This neurobiological information implies that brain mechanisms of phoneme, word and construction processing are neuronal assemblies distributed across modality-preferential areas related to action and perception and across associated connector hubs. For the emergent distributed but functionally intertwined neuron groups, the term 'action perception circuits' or APCs is proposed, because their formation is driven by correlation of sensorimotor information, although their function goes far beyond the processing of motor and sensory information…
>
> In this perspective, language and communication mechanisms are built from information about actions and perceptions, and action and perception mechanisms are shaped and 'reused' for language, conceptual thought and communication. Therefore, the latter are intrinsically interlinked computationally with perception and action knowledge. Although body movements and input from the environment contribute to the formation of a network of APCs, this system is not restricted to mapping 'the world' on neurons: as discussed in detail, it crucially implies 'creative' aspects, for example in the mechanisms for combination, abstraction and action sequences[1025].

All of this leads us to consider language from a Thomistic perspective. Recently De Haan has written that language is not limited exclusively to the intellect, but rather

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[1024] T. GOUCHA – A. ANWANDER – H. ADAMSON – A. D. FRIEDERICI, «Native language leaves distinctive traces in brain connections», in 10.1101/2022.07.30.501987 [22-7-2024]. Presumably by "Chinese" the researchers mean Mandarin.

[1025] F. PULVERMÜLLER, «Neural reuse of action perception circuits for language, concepts and communication», *Progress in Neurobiology* 160 (2018), in 10.1016/j.pneurobio.2017.07.001 [22-7-2024]: 36-37.

involves the other internal senses, in particular the cogitative power[1026]. This seems to agree with the general thought of sensorimotor enactivism, although the mechanics of this, from a Thomistic perspective, will be examined in a following section. On the one hand, there is clearly a link between behavior and language, which would seem to preclude language from being solely an intellectual function. Likewise, it has been noted that language is how man perceives the individual, which is precisely the function of the cogitative power.

Affective passions (love, pain, fear, and anxiety)

Emotional and affective responses have also been the subject of recent enactivist thought[1027]. A work of particular importance is Giovanna Colombetti's 2014 monograph, *The Feeling Body: Affective Science Meets the Enactive Mind*. In the very beginning of her book, Colombetti offers a view of affectivity which, while broader than the one scientists typically use, sounds strikingly Thomistic:

> Affectivity as discussed in this chapter refers broadly to a lack of indifference, and rather a sensibility or interest for one's existence…. It refers to the capacity to be personally affected, to be "touched" in a meaningful way by what is affecting one. In this broad sense, it is not necessary to be in a specific emotion or mood to be in an affective state; one is affected when something merely strikes one as meaningful, relevant, or salient.
>
> Drawing on the enactive approach, in this chapter I argue that affectivity thus understood depends on the organizational properties of life, such that all living systems—even the simplest ones—are affective; hence the term *primordial affectivity*. As we will see in detail later, according to the enactive approach, all living systems are *sense-making* systems, namely (and roughly for now), they inhabit a world that is significant for them, a world that they themselves enact or bring forth as the correlate of their needs and concerns. In the enactive approach, this activity of sense making is the mark of *cognition*. What I add to this idea is the point that the activity of sense making is simultaneously also *affective*. To clarify, the claim is not that all living systems, including the simplest ones, have emotions. The claim is rather that even the simplest living systems have a capacity to be sensitive to what matters to them, and in this sense they are affective. Nor is the claim that even the simplest living systems are

[1026] D. D. DE HAAN, «Linguistic Apprehension as Incidental Sensation in Thomas Aquinas», *Proceedings of the ACPA* 84 (2011), in 10.5840/acpaproc20108415 [7-3-2024], 179–196.

[1027] For instance, see M. MAIESE, «Transformative Learning, Enactivism, and Affectivity», *Stud Philos Educ* 36/2 (2017), in 10.1007/s11217-015-9506-z [9-7-2024], 197–216; S. OVERGAARD, «Enactivism and the Perception of Others' Emotions», *Midwest Stud Philos* 41/1 (2017), in 10.1111/misp.12068 [9-7-2024], 105–129.

> conscious; rather, the simplest living systems already realize a relationship with themselves and the world in which they are situated that entails purposefulness and concern for their existence[1028].

Colombetti's understanding of enactive emotions or affects is very much in line with the Thomistic understanding of the sensitive appetites which "seek after" what is important for that organism, either to obtain it or to avoid it[1029]. In her book, Colombetti notes that, on one hand, "the best way to conceptualize emotional episodes, I believe, is as dynamical patterns. More precisely, emotional episodes should be understood as self-organizing patterns of the organism"[1030]. These can best be explained, she claims, by using tools and concepts from dynamical systems theory. To this end, Colobetti notes that:

> Existing evidence remains consistent with the claim that a number of emotions come in relatively recurrent patterns of neural and ANS activity. Importantly, as we shall see in the next chapter, this stability need not imply that neural and autonomic patterns are products of prewired affect programs. Yet it indicates that "there is something" in, or better "of," the organism, which remains relatively stable for at least some emotions[1031].

In other words, while Colobetti considers that emotions and affective responses are subject to modification, they are also established as a part of the organism's structure or make-up, as it were, perhaps in the form of neural traces. For lower animals, these emotions that are "wired in" are difficult, if not impossible, to change. Such thought is confirmed, for instance, by researchers Hadas Okon-Singer and his team, who note in their review article, «The neurobiology of emotion-cognition interactions: fundamental questions and strategies for future research»:

> The distinction between the 'emotional' and the 'cognitive' brain is fuzzy and context-dependent. Indeed, there is compelling evidence that brain territories and psychological processes commonly associated with cognition, such as the dorsolateral prefrontal cortex and working memory, play a central role in emotion. Furthermore, putatively emotional and cognitive regions influence one another via a complex web of connections in ways that jointly contribute to adaptive and maladaptive behavior. This work demonstrates that emotion and cognition are deeply interwoven in the fabric

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[1028] COLOMBETTI, *The Feeling Body*, 1-2.

[1029] The word "appetite" comes from the Latin *appetere,* from *ad-* meaning "to" and *petere* "to seek".

[1030] COLOMBETTI, *The Feeling Body*, 53.

[1031] COLOMBETTI, *The Feeling Body*, 32.

> of the brain, suggesting that widely held beliefs about the key constituents of 'the emotional brain' and 'the cognitive brain' are fundamentally flawed[1032].

The rejection of a strict distinction between emotion and cognition is also fruit of the enactive approach, since the cognitive approach to emotion tends to compartmentalize emotion and cognition, making the two very distinct processes[1033]. This is not to say that brain regions are not associated with emotions; there are such regions, but no region is exclusively emotional[1034]. Rather, "cognition and emotion are not vertical modules, because the subpersonal processes underpinning them are too complexly entangled; cognition and emotion do not correspond or map in a one-to-one way to dedicated neural systems but are 'constitutively interdependent'"[1035].

How interwoven these aspects are can be seen clearly in lesion studies. For instance, the patient SM has bilateral amygdala damage; as a consequence, she is fearless. As Feinstein, Adolphs, Damasio, and Tranel summarize their best efforts to cause SM fear:

> To provoke fear in SM, we exposed her to live snakes and spiders, took her on a tour of a haunted house, and showed her emotionally evocative films. On no occasion did SM exhibit fear and she never endorsed feeling more than minimal levels of fear. Likewise, across a large battery of self-report questionnaires, three months of real-life experience sampling, and a life history replete with traumatic events, SM repeatedly demonstrated an absence of overt fear manifestations and an overall impoverished experience of fear. Despite her lack of fear, SM is able to exhibit other basic emotions and experience the respective feelings[1036].

Yet, there are also other consequences which could be seen as only indirectly emotional: the researchers also noted SM's almost excessive curiosity, leading her to

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[1032] H. OKON-SINGER – T. HENDLER – L. PESSOA - A. J. SHACKMAN, «The neurobiology of emotion-cognition interactions: fundamental questions and strategies for future research», *Front. Hum. Neurosci.* 9 (2015), in 10.3389/fnhum.2015.00058 [22-5-2024].

[1033] This is the focus of the first part of chapter 4 in COLOMBETTI, *The Feeling Body*, 83-98, which gives a historical overview of this understanding.

[1034] See COLOMBETTI, *The Feeling Body*, Section 4.5, Eroding the Neural Boundaries between Cognition and Emotion, 98-101, for an overview of studies that have shown how previously "cognitive" areas of the brain are associated with emotions, and likewise how the "emotional" brain is also linked with higher cerebral functions.

[1035] COLOMBETTI, *The Feeling Body*, 100.

[1036] J. S. FEINSTEIN – R. ADOLPHS – A. DAMASIO – D. TRANEL, «The Human Amygdala and the Induction and Experience of Fear», *Current Biology* 21/1 (2011), in 10.1016/j.cub.2010.11.042 [7-7-2024], 34–38.

ask to touch and even to attempt to touch the most dangerous snakes and tarantulas, even after being warned about the dangers. Indeed, the researchers reported that in the haunted house, SM frightened one of the "monsters" by reaching out to touch him. These researchers noted that although SM has survived several traumatic experiences, she has no symptoms of PTSD, a fact replicated in combat veterans who also have experienced damage to the amygdala. Her lesion has additional consequences that are not emotional: other researchers working with SM have noticed that although she states she understands the concept of personal space, she does not maintain any sort of distance in conversations[1037]. She will engage in conversations at such proximity that others find it extremely uncomfortable.

Research continues to explore these connections. Indeed, Colombetti notes that the relationship between the bodily reactions related to emotions, and the emotions and cognitions themselves, is quite difficult to precisely describe. In her words: "It is not enough to feel one's stomach contracting in disgust to establish that one's stomach is in fact contracting. The relationship between the lived and the living body is a complex one that needs to be investigated with a variety of tools"[1038]. We can indicate several studies that reveal how the body, meaning, the emotions and the brain, and the world might mutually influence each other. Particularly paradigmatic and well-studied cases are those of stress-related anxiety, as well as studies regarding love (considered as the formation of human bonds) and pain.

Stress-related anxiety

In the review article «The impact of anxiety upon cognition: perspectives from human threat of shock studies», Oliver Robinson and his team take up a well-established distinction between fear and anxiety: "Anxiety is defined as the response to prolonged, unpredictable threat, a response which encompasses physiological,

[1037] D. P. KENNEDY – J. GLÄSCHER – J. M. TYSZKA – R. ADOLPHS, «Personal space regulation by the human amygdala», *Nat Neurosci* 12/10 (2009), in 10.1038/nn.2381 [7-7-2024], 1226–1227.
[1038] COLOMBETTI, *The Feeling Body*, 133.

affective, and cognitive changes. . . According to this definition, anxiety is distinct from fear; a response to acute predictable threats. Fear and anxiety are dissociable at the behavioral, neural, and pharmacological level"[1039]. We can note the following salient points that relate to our discussion of the sensorimotor implications of anxiety:

- The basic biological mechanism that underlies anxiety seems to have been an evolutionary adaptation to a particular *Umwelt*: "Rapid detection of emotionally salient events is critical for survival. However, given capacity limits on attention and awareness, the ability of emotional stimuli to preferentially capture attention comes with a cost"[1040]. Robinson and his fellow researchers note that "anxiety sensitizes sensory cortical systems to innocuous environmental stimuli"[1041]. In other words, the anxious subject is hypersensitive to stimuli which in fact pose no threat[1042]. Further studies have found that other pathologies respond differently to stimuli, either in an exaggerated or diminished way[1043].

[1039] O. J. ROBINSON – K. VYTAL – B. R. CORNWELL – C. GRILLON, «The impact of anxiety upon cognition: perspectives from human threat of shock studies», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00203 [23-5-2024]: 1-2.

[1040] M. MCHUGO – B. O. OLATUNJI – D. H. ZALD, «The emotional attentional blink: what we know so far», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00151 [23-5-2024]: 1.

[1041] ROBINSON – VYTAL – CORNWELL – GRILLON, «The impact of anxiety upon cognition», 2.

[1042] This consequence of anxiety can also be observed in studies of EAB (emotional attentional blink or emotion-induced blindness). Subjects are charged with a task involving the rotation of images. Amid this series of neutral images, an "emotional stimulus image" is inserted: such images could be negative, aversive, or even erotic. The response is then measured, called "attention capture", as well as the lag time in processing the subsequent neutral images, labeled "disengagement" and "reestablishment of top-down control". Cf. MCHUGO – OLATUNJI – ZALD, «The emotional attentional blink».

[1043] Studies have shown that different psychopathologies respond differently to the images: for instance, veterans who suffer from PTSD respond vehemently to combat-related images, but to images that should arise disgust or positive reactions, they respond in a way comparable to the control group and even combat veterans without PTSD. Likewise, patients with OCD (obsessive-compulsive disorder) had relatively normal attention capture, but difficulty in disengaging the stimulus. Lastly, patients with GAD (generalized anxiety disorder) have both vehement reactions, indicative of hypersensitivity to stimuli and hence a strong attention

- In their article on anxiety and perceptual-motor performance, Arne Nieuwenhuys and Raôul R. D. Oudejans follow the insights of embodied perception and ecological psychology, and divide the literature according to the phases or steps of perceiving an object and reacting to it: "starting with the detection of task-relevant information (*perception*), continuing with the selection of action possibilities (*selection*), and ending with the actual execution of movement itself (*action*)"[1044]. The two researchers, reviewing a vast amount of literature, have found that anxiety affects all three stages.
    - As regards *perception*: when anxious, the subject's visual scanning of a scene becomes less efficient; the subject also tends to be more easily distracted and threatening stimuli receive greater attention. Likewise, stimuli are often interpreted as threat-related: the person afraid of heights reports that a height is higher than it is, and vague stimuli (such as listening to a recording with the word "dye") are often interpreted as a threat (hearing the word "die"). Hence, the researchers conclude that "besides causing people to attend to different information (e.g., threat-related vs. task-relevant), anxiety may also affect the perception of action possibilities by altering how we perceive and interpret our environment"[1045].

capture, as well as difficulty disengaging the images. See ROBINSON – VYTAL – CORNWELL – GRILLON, «The impact of anxiety upon cognition», 8.

[1044] A. NIEUWENHUYS – R. R. D. OUDEJANS, «Anxiety and perceptual-motor performance: toward an integrated model of concepts, mechanisms, and processes», *Psychological Research* 76/6 (2012), in 10.1007/s00426-011-0384-x [24-7-2024], 749. On 748, they note: "Our own approach to perceptual-motor behavior can be considered embodied (e.g., Beilock, 2008b; Proffitt, 2006; Wilson, 2002), and ultimately has its origins in ecological psychology (Gibson, 1979). Essentially, the embodied approach holds that information is a product of our interaction with the world and, hence, inherently specifies the behavioral possibilities of an environment taken with reference to a particular actor".

[1045] NIEUWENHUYS – OUDEJANS, «Anxiety and perceptual-motor performance», 749.

- As regards *selection*: "By affecting how people perceive or interpret their environment (Bishop, 2007; Mathews & Mackintosh, 1998; Proffitt, 2006), anxiety may seriously alter the selection of action possibilities"[1046]. Researchers have found that rock climbers in high-stress situations opt for shorter grasps and jumps than while in a low-stress situations, and police officers in a training module for deciding to shoot or restrain from shooting would err and shoot innocuous targets more often when under acute stress.
- As regards *action*: in general, anxiety also decreases performance of tasks. "Several studies showed that the time that people fixate on such a target [such as making a basket or scoring a penalty in soccer] is significantly reduced under anxiety, which allows less time to fine-tune movements on the basis of visual information, and causes a considerable decrease in performance"[1047]. When anxious, the subject's attention often turns to potential threats instead of the goal: "when participants performed a soccer penalty kick under conditions of high anxiety, they tended to increase the number and duration of fixations to the goalkeeper (a potential source of threat), and actually ended op [*sic*] shooting closer to the goalkeeper's position"[1048]. Similarly, runners in a high anxiety situation would use smaller, less efficient movements as opposed to those in low anxiety settings[1049].

[1046] NIEUWENHUYS – OUDEJANS, «Anxiety and perceptual-motor performance», 750.
[1047] NIEUWENHUYS – OUDEJANS, «Anxiety and perceptual-motor performance», 750.
[1048] NIEUWENHUYS – OUDEJANS, «Anxiety and perceptual-motor performance», 750.
[1049] See NIEUWENHUYS – OUDEJANS, «Anxiety and perceptual-motor performance», 750: Participants ran on treadmills at various heights above the ground. The higher the treadmill, the more participants reported being afraid of falling, and the less efficient their movements became.

- Lastly, anxiety also affects memory in a notable way. As Robinson summarizes: "Broadly speaking, the current literature is mixed, but there is some agreement in findings across different anxiety manipulations and anxiety profiles (dispositional or clinical). In particular, the majority of findings demonstrate that spatial working memory is disrupted by anxiety disorders and long-term episodic memory (especially for negative emotional stimuli) is *enhanced*"[1050].
- This working memory, as Rebecca M. Shansky and Jennifer Lipps note in their review article regarding stress-induced cognitive dysfunction, is "our ability to manage, update, and act on information in the absence of external cues—executive functions collectively known as working memory. . . Under optimal, stress-free conditions, microcircuits within the PFC [prefrontal cortex] work together to inhibit inappropriate responses and allow nuanced decision-making. Exposure to stress, however, can disrupt PFC function, markedly impairing working memory"[1051]. These researchers propose that the ability of stress to override this complex processing "may have only allowed more primitive behaviors to take precedence in order to aid survival. But

[1050] ROBINSON – VYTAL – CORNWELL – GRILLON, «The impact of anxiety upon cognition», 8. For other possible regions of interest in the brain, see S. L. WARREN – L. D. CROCKER – J. M. SPIELBERG – A. S. ENGELS - M. T. BANICH – B. P. SUTTON - ET AL., «Cortical organization of inhibition-related functions and modulation by psychopathology», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00271 [23-5-2024]. See also the study involving SM: B. A. STRANGE – R. HURLEMANN – R. J. DOLAN, «An emotion-induced retrograde amnesia in humans is amygdala- and β-adrenergic-dependent», *Proc. Natl. Acad. Sci. U.S.A.* 100/23 (2003), in 10.1073/pnas.1635116100 [7-7-2024], 13626–13631.

[1051] R. M. SHANSKY – J. LIPPS, «Stress-induced cognitive dysfunction: hormone-neurotransmitter interactions in the prefrontal cortex», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00123 [22-5-2024]. See also N. BERGGREN – A. RICHARDS – J. TAYLOR – N. DERAKSHAN, «Affective attention under cognitive load: reduced emotional biases but emergent anxiety-related costs to inhibitory control», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00188 [23-5-2024].

> today, non-life-threatening stressors can activate these same circuits, eliciting scattered thought, loss of focus, and judgment errors"[1052].

Hence even if the precise mechanisms remain to be fully elucidated, anxiety not only affects memory and recall, but also the evaluation or value associated with a perceived object as well as behaviors. Sensorimotor knowledge, memory, affordances, behavior, and emotion are all interwoven. With all this in mind, one more point should be added: anxiety has a basis in a neurobiological mechanism, and some individuals are more susceptible to having this mechanism over-react. In the work done by Ellen M. Kessel's group, it was shown that there is a social dimension to these reactions as well. While it is true that there is a genetic or neurobiological basis, Kessel's work has shown that different parenting styles can counteract or exacerbate these natural tendencies[1053]. What Kessel's work claims to show is that children who are naturally more sensitive to aversive stimuli tended to be more inhibited in their behaviors *if* their mothers' parenting style tended to emphasize safety, rules, and potential negative outcomes. If their mothers had a parenting style that emphasized positive aspects such as rewards and accomplishments, even if the children were naturally more sensitive, they were not subsequently inhibited in their behaviors. As Kessel concludes, "taken together, findings underscore the possibility that promotion parenting is a social context that influences links between child emotional processing and inhibited behavior in typically-developing children"[1054]. This "social context" is, as it were, a behavior-shaping behavior, wherein the mother, by her behaviors, shapes the way the child perceives his own behaviors and adjusts them.

[1052] SHANSKY – LIPPS, «Stress-induced cognitive dysfunction», 1.

[1053] E. M. KESSEL – R. F. HUSELID – J. M. DECICCO – T. A. DENNIS, «Neurophysiological processing of emotion and parenting interact to predict inhibited behavior: an affective-motivational framework», *Front. Hum. Neurosci.* 7 (2013), in 10.3389/fnhum.2013.00326 [23-5-2024].

[1054] KESSEL – HUSELID – DECICCO –DENNIS, «Neurophysiological processing of emotion and parenting interact», 10.

Given the importance of the parent-child bond, we can now continue to look at the so-called neurobiology of love and the formation of affective bonds, as well as the subsequent effects that result from them.

Love as attachment bonds

Anxiety is not the only phenomenon to be studied at length by researchers. In her article, «The Neurobiology of Human Attachments», Ruth Feldman offers a synthetic hypothesis of how humans can form emotional bonds: the mother-child bond, which requires close physical contact during the critical period, serves as a sort of schema for future relationships[1055]. Among Feldman's "key propositions":

- "Mammalian bonding is supported by neurobiological systems shaped by the mother–offspring relationship during early sensitive periods": Feldman proposes a neural mechanism that involves a crosstalk of dopamine and oxytocin[1056].
- "Continuity in neurobiological systems underpins human bonds: Human attachments repurpose the basic machinery established by the parent–offspring bond in the formation of other attachments throughout life, such as romantic attachment or close friendships"[1057]. In other words, the neurobiological "template" of the parent-offspring bond serves as a model for all future relationships.
- There is a very important sensorimotor component to the formation of these systems: "Bonding is behavior based triggered by the expression of species-specific, person-specific, and culture-specific behavioral

[1055] R. FELDMAN, «The Neurobiology of Human Attachments», *Trends in Cognitive Sciences* 21/2 (2017), in 10.1016/j.tics.2016.11.007 [23-5-2024], 80–99.

[1056] More specifically, Feldman's "proposed model suggests that the 'intensity of love', the quality of attachment, is measured in terms of the vigor of DA action in striatum, particularly in the nucleus accumbens (NA). DA acts in the NA to organize goal-directed reward-related behavior characterized by initiation and vigor by inhibiting the inhibitory output of NA GABAergic (inhibitory) medium spiny neurons, which then release ventral pallidum (VP) neurons in the basal ganglia to enable motor action": FELDMAN, «The Neurobiology of Human Attachments», 82. Note the importance of motor action.

[1057] FELDMAN, «The Neurobiology of Human Attachments», 81.

> patterns: Bonding implicates bottom–up processes. Bonding-related brain and neuroendocrine systems are *activated by attachment-related behavior*"[1058]. Indeed, notes Feldman, "Biobehavioral synchrony is a key feature of human attachments: Human attachments are characterized by the coupling of coordinated nonverbal behavior with coordinated physiological response among partners during social contact"[1059]. Feldman cites studies that have demonstrated synchronized behaviors between a child and parent, for instance, in gaze and touch, but also in synchronized heart rates during synchronized interactions, coordinated oxytocin response following contact, and coordinated brain oscillation in alpha and gamma rhythms[1060]. In other words, there is a cycle of affirmation, as the behaviors lead to the activation of neurobiological processes which, in turn, lead to encouraging the behaviors.

Feldman's research shows the importance of sensorimotor interaction in the formation of the mother-child bond; this bond then seems to serve as a "template" or a "schema" for future relationships. Such "bonds" or connections can also be formed in other ways, such as through empathy. Hence, it behooves us to examine pain.

Pain

Patrick Haggard, Gian Domenico Iannetti, and Matthew R. Longo begin their review article with the following indication: "The International Association for the Study of Pain defines pain as 'an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage.' This definition underlines that pain is inextricably linked to the state of one's

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[1058] FELDMAN, «The Neurobiology of Human Attachments», 81. Emphasis added. See also the extensive work of John Bowlby on attachment theory.

[1059] FELDMAN, «The Neurobiology of Human Attachments», 81.

[1060] See FELDMAN, «The Neurobiology of Human Attachments», 87-90 for the discussion, and the figure on 89 shows the comparison between the different sorts of human relationships and the related synchronies that take place. These examples are taken from said figure.

own body"[1061]. Indeed, as the authors note, it would be impossible to understand a "disembodied pain": but what *is* the relation between pain and the body?

It was long been established that chronic or cyclic pain can alter brain morphology, even quickly, and can result in differing perceptions of pain[1062]. Very recently (January 2024), Greg M. Murray and Barry J. Sessle proposed a comprehensive theory called the Theory of Pain-Sensorimotor Interactions (TOPSMI)[1063]. In their own words:

> The Theory of Pain-Sensorimotor Interactions (TOPSMI) that we suggest gives a more comprehensive framework to consider the interactions and their complexity. This theory states *that pain is associated with plastic changes in the central nervous system (CNS) that lead to an activation pattern of motor units that contributes to the individual's adaptive sensorimotor behavior. This activation pattern takes account of the biological, psychological, and social influences on the musculoskeletal tissues involved in sensorimotor behavior and on the plastic changes and the experience of pain in that individual. The pattern is normally optimized in terms of biomechanical advantage and metabolic cost related to the features of the individual's musculoskeletal tissues and aims to minimize pain and any associated sensorimotor changes, and thereby maintain homeostasis. However, adverse biopsychosocial factors and their interactions may result in plastic CNS changes leading to less optimal, even maladaptive, sensorimotor changes producing motor unit activation patterns associated with the development of further pain*[1064].

[1061] P. HAGGARD – G. D. IANNETTI – M. R. LONGO, «Spatial Sensory Organization and Body Representation in Pain Perception», *Current Biology* 23/4 (2013), in 10.1016/j.cub.2013.01.047 [23-5-2024], R164–R176. Quote from R164.

[1062] See, for instance: C.-H. TU – D. M. NIDDAM – H. T. CHAO – L.F. CHEN – Y.-S. CHEN – Y.-T. WU, - ET AL., «Brain morphological changes associated with cyclic menstrual pain», 150/3 (2010), in 10.1016/j.pain.2010.05.026 [23-5-2024], 462–468. The consequence of these changes are, as the authors report: "impaired pain inhibition, increased pain facilitation and increased affect. Our findings highlight that longer lasting central changes may occur not only in sustained chronic pain conditions but also in cyclic occurring pain conditions" (462). In other words, these changes *increase* sensitivity to pain; C.-H. TU – D. M. NIDDAM – T. C. YEH – J.-F. LIRNG – C.-M. CHENG – C.-C. CHOU - ET AL., «Menstrual pain is associated with rapid structural alterations in the brain», 154/9 (2013), in 10.1016/j.pain.2013.05.022 [23-5-2024], 1718–1724. However, see, for instance, M. L. PETERS – A. J. M. SCHMIDT, «Differences in pain perception and sensory discrimination between chronic low back pain patients and healthy controls», *Journal of Psychosomatic Research* 36/1 (1992), in 10.1016/0022-3999(92)90113-g [23-5-2024], 47–53. Here, the conclusion is that "CLBP patients have a decreased sensitivity for experimental pain" (47).

[1063] G. M. MURRAY – B. J. SESSLE, «Pain-sensorimotor interactions: New perspectives and a new model», *Neurobiology of Pain* 15 (2024), in 10.1016/j.ynpai.2024.100150 [24-7-2024], 100150.

[1064] MURRAY – SESSLE, «Pain-sensorimotor interactions», 1. Emphasis in original.

This theory attempts to make sense of a great number of studies that reveal the different effects that pain has on a subject. Among their conclusions, and those of Axel D. Vittersø, Monika Halicka, Gavin Buckingham, Michael J. Proulx, and Janet H. Bultitude in «The sensorimotor theory of pathological pain revisited», of interest to our study are the following[1065]:

- It is well documented that pain interferes with movement. On the one hand, this can be a temporary effect: "it is … commonplace experience that nociceptive reflexes can readily interrupt rhythmical movements such as walking, running, and breathing"[1066]. However, the results can also be long term, especially in the case of chronic pain. Part of this might be attributable to the weakening of some muscles, as the subjects adjust their movements to avoid those that are painful. Hence, the central nervous system [CNS] reorganizes itself, but often in a way that is maladaptive. This is labeled "maladaptive plasticity (or malplasticity) which refers to plasticity that is likely to disrupt or compromise the normal functions of the CNS areas involved"[1067]. "Overall, there is strong evidence for motor deficits that are related to cortical reorganisation in people with pathological pain, and that these are at least related to, and perhaps lead to pain"[1068].
- Pain can also interfere with the sensory input *received* by the subject: "Many pathological pain conditions are accompanied by reduced accuracy and precision of sensory information and problems with filtering irrelevant information"[1069]. As Vittersø and his team note, these

[1065] See also A. D. VITTERSØ – M. HALICKA – G. BUCKINGHAM – M. J. PROULX – J. H. BULTITUDE, «The sensorimotor theory of pathological pain revisited», *Neuroscience & Biobehavioral Reviews* 139 (2022), in 10.1016/j.neubiorev.2022.104735 [24-7-2024], 104735.
[1066] MURRAY – SESSLE, «Pain-sensorimotor interactions», 5.
[1067] MURRAY – SESSLE, «Pain-sensorimotor interactions», 8.
[1068] VITTERSØ – HALICKA – BUCKINGHAM – PROULX – BULTITUDE, «The sensorimotor theory of pathological pain revisited», 4.
[1069] VITTERSØ – HALICKA – BUCKINGHAM – PROULX – BULTITUDE, «The sensorimotor theory of pathological pain revisited», 4.

include reduced tactile sensitivity, reduced tactile acuity as measured by two-point discrimination, and a reduced ability to distinguish between smooth and grooved surfaces, as well as proprioceptive deficits. This information is used differently as well[1070].

- Likewise, the subject's way of understanding their body, which is used to "generate predictions about the sensory outcomes of a movement", is often distorted in subjects with pain[1071]. "Findings show that when misperceptions of the size of the affected body part do occur, the error is typically towards perceiving the body as larger than its physical size"[1072]. "Irrespective of the underlying mechanism, both motor representations (Jeannerod and Decety, 1995) and body representations (Haggard and Wolpert, 2005) are involved in motor predictions. Thus, distorted representations of the body could impair motor predictions, and thereby result in sensorimotor incongruence and pain"[1073].
- Lastly, there are psychosocial factors as well that influence pain perception: "It is also noteworthy that many psychosocial factors themselves (e.g. stressful experiential factors such as adverse early life experiences, stressful family environments, post-traumatic stress disorder) are associated with maladaptive plasticity in brain regions involved in social, cognitive, and emotional functioning (Davidson and

[1070] See VITTERSØ – HALICKA – BUCKINGHAM – PROULX – BULTITUDE, «The sensorimotor theory of pathological pain revisited», 4-5. After noting that patients with CRPS (Complex Regional Pain Syndrome) do not use tactile information to predict the spatial location of stimuli, they conclude "Taken together, there is substantial evidence that tactile detection and temporal and spatial aspects of touch processing are degraded for people with CRPS, dystonia, fibromyalgia, headache/orofacial pain, musculoskeletal pain, and neuropathic pain, and they appear to use this information differently to pain-free individuals" (5).

[1071] VITTERSØ – HALICKA – BUCKINGHAM – PROULX – BULTITUDE, «The sensorimotor theory of pathological pain revisited», 5.

[1072] VITTERSØ – HALICKA – BUCKINGHAM – PROULX – BULTITUDE, «The sensorimotor theory of pathological pain revisited», 6.

[1073] VITTERSØ – HALICKA – BUCKINGHAM – PROULX – BULTITUDE, «The sensorimotor theory of pathological pain revisited», 7.

> McEwen, 2012; Popoli et al., 2012) which may influence subsequent nociceptive processing"[1074].

However, of particular interest to us is the social aspect or component of pain, that is, the sharing in another's pain by means of empathy. Here as well, the neural mechanisms by which we come to participate in the pain of another are not well-understood. One thought is that mirror neurons enable a transfer from hurting subject to perceiver, which finds support in the literature[1075]. Interestingly, experiments have also shown that "empathy for another person was not influenced by a localized pain reduction in a specific body part"; in other words, feelings of empathy were not reduced by the administration of local anesthetics, suggesting that empathy is more a participation in the emotive or affective state of the sufferers, rather than in the psychosomatic state[1076].

[1074] MURRAY – SESSLE, «Pain-sensorimotor interactions», 11.

[1075] "Animal studies have revealed that a population of neurons in the F5 (homologous to the inferior frontal gyrus (IFG)) and the PF (homologous to the inferior parietal lobule (IPL)) respond when a monkey generates a goal-oriented action or creates an internal representation of a motor act made by another agent (Cattaneo and Rizzolatti, 2009). It has been hypothesized that such internal representations permit the simulation of motor acts to rapidly understand the motor goal and intention that is observed in others. Accordingly, in humans, a fronto-parietal analog to this mirror neuron system is believed to permit an understanding of the action and the intention of others (Rizzolatti et al., 2001), learning by imitation and communication with others (Rizzolatti and Craighero, 2004), and participating in the decoding of another person's mind (Zaki et al., 2009). This system could represent one of the gateways that enable the resonance with other people's states and promote the shared representations (Hétu and Jackson, 2012)": E. VACHON-PRESSEAU – M. ROY – M. O. MARTEL – G. ALBOUY – J. CHEN – L. BUDELL - ET AL., «Neural processing of sensory and emotional-communicative information associated with the perception of vicarious pain», *NeuroImage* 63/1 (2012), in 10.1016/j.neuroimage.2012.06.030 [23-5-2024], 55.

[1076] H. HARTMANN – M. RÜTGEN – F. RIVA – C. LAMM, «Another's pain in my brain: No evidence that placebo analgesia affects the sensory-discriminative component in empathy for pain», *NeuroImage* 224 (2021), in 10.1016/j.neuroimage.2020.117397 [23-5-2024], 117397. See also: I. MORRISON – S. P. TIPPER – W. L. FENTON-ADAMS – P. BACH, «"Feeling" others' painful actions: The sensorimotor integration of pain and action information», *Human Brain Mapping* 34/8 (2013), in 10.1002/hbm.22040 [23-7-2024], 1982–1998: "When subjects viewed others' hands grasping or withdrawing from objects that were either painful or nonpainful, distinct sensorimotor subregions emerged as showing preferential responses to different aspects of the stimuli: object information (noxious vs. innocuous), action information (grasps vs. withdrawals), and painful action outcomes (painful grasps vs. all other conditions)" (1982).

This empathic response, the ability to sense the emotional state of another person, would seem to be ascribed to the cogitative power by Aquinas, since it concerns grasping an unsensed intention. Presumably this recognition is something that can be learned over time, and can be subjected to the influence of social and cultural pressures (e.g., what is appropriate to do in order to respond to sadness, what is appropriate to show anger, and the like). We will return to this when we consider the *experimentum* and schema.

Plasticity

The various modifications of the perceiver's neural structure require a certain degree of *plasticity*, a key principle that lies at the foundation of enactivism. "Brain plasticity is the capacity of cerebral neurons to change, structurally and functionally, in response to experiences. This is an essential property underlying the maturation of sensory functions, learning and memory processes, and brain repair in response to the occurrence of diseases and trauma"[1077]. Mention was made of Noë's reliance on Mriganka Sur's work with ferrets which showed the malleability of the connection between sensory neurons and the associated brain cortexes[1078].

While it is certain that certain areas of the brain are typically associated with a given set of functions (for instance, the visual cortex and its neurons corresponds to visual stimuli, and this localization or spatial determination is found already in the developing embryo as a result of genetic factors), this plasticity, the ability of neurons and larger structures to undergo functional and structural change forms the basis for the schema, learning, and a host of other processes. Indeed, the philosopher Catherine Malabou makes plasticity (*plastiquese*) the very substance of the world, and attributes

[1077] E. TONTI – M. BUDINI – E. M. VINGOLO, «Visuo-Acoustic Stimulation's Role in Synaptic Plasticity: A Review of the Literature», *IJMS* 22/19 (2021), in 10.3390/ijms221910783 [29-1-2024], 10783, 1 of 15.

[1078] See NOË, *Out of Our Heads*, 53-65, but also the earlier S. HURLEY – A. NOË, «Neural Plasticity and Consciousness», *Biol Philos* 18/1 (2003), in 10.1023/a:1023308401356 [26-1-2024], 131–168.

to it "the threefold capacity to give, receive, and destroy form"[1079]. While ontologically the affirmation does not agree with Aquinas, this three-fold notion of plasticity as giving, receiving, and destroying epistemologically is worth considering. Sensorimotor contingencies certainly give a means of understanding the world, as well as being able to receive modifications and changes. In a later section, we will address this notion of destruction in terms of trauma and other experiences that radically reform neurological structures and hence affect perception.

It is worth noting that neural plasticity is consistent with Thomistic hylomorphism. In his article on Thomistic hylomorphism and neuroplasticity, Daniel D. De Haan contends that accidental acts must "formally alter and determine our substance, that is both our form and matter"[1080]. If this were not the case, contends De Haan, and our actions simply modified our spiritual order, this would be more akin to dualism than Thomistic hylomorphism. Rather, there is evidence, as seen with disciplined activities, that these formal determinations appear within the material component of man[1081]. As De Haan concludes:

> The neural substrate of our psychological faculties materially conditions the potential range of formal activities carried out by our faculties. But these activities also formally determine the whole central nervous system as the substrate these activities organize and pattern. By seeing, perceiving, desiring and acting towards some object, our

[1079] T. WORMALD, «On Plasticity's own Conceptual Epigenesis: Malabou on the origin and history of plasticity», *Cosmos and History: The Journal of Natural and Social Philosophy* 16/1 (2020): 103.

[1080] D. D. DE HAAN, «Thomistic Hylomorphism, Self-Determination, Neuroplasticity, and Grace: The Case of Addiction», *Proceedings of the ACPA* 85 (2011), in 10.5840/acpaproc2011859 [7-3-2024], 101.

[1081] See DE HAAN, «Thomistic Hylomorphism, Self-Determination», 102: "But if this is true, then we should expect to find some manifestation of formal determinations within the material substrate. Indeed we do. Disciplined activities (intentionally and unintentionally developed dispositions and *habitus*) bestow proficiency and increased capacities at both the physiological and psychological levels. Those who exercise various muscle groups gain superior endurance, flexibility and dexterity in these muscles. Various activities can also heighten our sensory attention to the more subtle details present in different sensibilia, for instance, in musicians with audition and sommeliers in olfaction and gustation)". Note that here De Haan seems to limit his claims to what are *habits*, properly speaking, in the Thomistic sense. Our contention, as mentioned earlier, is that such plasticity can be applied even to the *experimentum*, which is different from habit in that it can be experienced without the intervention of the will and intellect.

> psychic faculties cooperatively enlist the coordination and integration of different neural systems, e.g., the visual cortex, limbic system, sensorimotor cortex, etc[1082].

In other words, De Haan sees the nervous system and perception as a mutually developing cycle: we are limited to certain activities by the structure itself, but through our experiences this structure can be modified and changed, sometimes even in radical ways, as will be seen presently[1083]. The Thomistic axiom still holds, namely, that "knowledge is regulated according as the thing known is in the knower. But the thing known is in the knower according to the mode of the knower. Hence the knowledge of every knower is ruled according to its own nature"[1084]. However, plasticity simply describes how our nature changes, not at the level of substance, but at the level of faculty, perhaps more specifically, the disposition of the organ of the perceptual faculty. This change comes about precisely from the knowledge itself modifying the knowing subject.

We noted that perceptual habits are formed and cemented over time, and that plasticity plays a key role in this. Once established, can perceptual habits be changed? This is the question that ultimately inspires Noë's latest works that focus on art, both visual and performance. In the afterword of *Varieties of Presence*, Noë asks if we can ever "escape the captivity of our habitual structures, of our language and models and pictures? Can we achieve *new* styles of access to the world all at once?... How could we ever get outside the spaces carved out by style and habit?[1085]" The answer, he claims, is yes. Images in particular catch our attention, and hold us captive. However, he remarks:

> our captivity is never total. Which means that this tension between the ways our understanding opens up and the ways it closes off the world for us is a conversation we can't help but having. And here's the beautiful thing: the having of that

[1082] DE HAAN, «Thomistic Hylomorphism, Self-Determination», 104.

[1083] For a detailed analysis of this, see T. S. CORY, «Embodied vs. Non-Embodied Modes of Knowing in Aquinas», 35/4 (2018), in 10.5840/faithphil20181023113 [7-3-2024], 417–446.

[1084] ST I, q. 12, a. 4, corpus.

[1085] NOË, *Varieties of Presence*, 154. Emphasis in original.

> conversation—which, really, is the work of philosophy, and of art—is the very process whereby we remake ourselves and enact new skills and new understandings[1086].

While it is difficult (if not impossible) to measure an artistic experience in neuroscientific terms, we can analyze three cases where we see the third of Malabou's capabilities of plasticity, namely, *to destroy a form*. These three cases are *traumatic experiences*, *drug-induced changes*, and *conversion experiences*.

Traumatic experiences

With growing violence and war throughout the world, there has been increased interest in studying the effects of traumatic experiences on victims. The DSM-V gives the following as part of the general diagnostic criteria for PTSD, essentially defining a traumatic experience as follows:

> Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways: 1. Directly…; 2. Witnessing, in person, the event(s) as it occurred to others; 3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental; 4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s)[1087].

In his book, *The Body Keeps the Score*, Bessel Van der Kolk notes that "trauma results in a fundamental reorganization of the way mind and brain manage perceptions. It

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[1086] NOË, *Varieties of Presence*, 154. See also NOË, *Strange tools*, 219, where he discusses in endnotes chapter two. In chapter one "I introduced a way of thinking about organization and explained that we are organized. We get organized by our habitual activities" (11). In the chapter two, he claims that "art is a reorganizational process; art takes as its raw materials the different ways we find ourselves organized (naturally, biologically, but also culturally)" (219). Likewise, in the preface to *Learning to Look* argues that works of art remake those who see them. However, "this is not unique to art, of course. What I have just outlined goes for all experience and is really life's first principle: life is a process of growth and reorganization, a process that commences right when we first act, for we reorganize ourselves and develop in response to the ways what we do changes what we undergo" (xi). In his most recent book, *The Entanglement*, he concludes saying: "Philosophy and art have the power to reorganize us" (196). Since Noë maintains that artistic experiences are difficult, if not impossible, to quantify or examine aesthetic experiences empirically, his last works are more reflections than scientific examinations.

[1087] AMERICAN PSYCHIATRIC ASSOCIATION, *DSM-5*, 178.

changes not only how we think and what we think about, but also our very capacity to think"[1088].

As evidence of this, Van der Kolk cites several studies of neuroscientific research. Among his findings:

- During flashbacks (that is, the reliving of a traumatic experience, which could be induced simply by reading a description of the event), the limbic system and visual cortex showed increased activity, and Broca's area showed significantly decreased activity[1089]; likewise, the right side of the patients' brains lit up, showing activity, whereas the left side remained dark, indicating almost no activity. This, explains Van der Kolk, impedes a logical understanding of the event and grasping cause-and-effect causality, and instead exalts the emotional recall and explanation of events[1090];
- "In PTSD the critical balance between the amygdala (smoke detector) and the MPFC (watchtower) shifts radically, which makes it much harder to control emotions and impulses"[1091]. In other words, the emotional reaction to stimuli tends to override the rational thought process.
- The effects of trauma extend even beyond just the nervous system: for instance, victims of incest were seen to have abnormal CD45 RA-to-RO ratios. These people had increased RA, or memory, cells, and decreased RO, or cells that are ready to attack a new threat. This "memory overload" might be responsible for auto-immune diseases that seem to afflict such persons with greater frequency[1092].

[1088] B. A. VAN DE KOLK, *The Body Keeps the Score*, Penguin Books 2015, 24. See also R. J. MCNALLY, *Remembering Trauma*, Harvard University Press 2005. McNally is critical of some of Van de Kolk's work, particularly regarding repressed memories.

[1089] See VAN DE KOLK, *The Body Keeps the Score*, 46-51.

[1090] See VAN DE KOLK, *The Body Keeps the Score*, 52-53.

[1091] VAN DE KOLK, *The Body Keeps the Score*, 73.

[1092] See VAN DE KOLK, *The Body Keeps the Score*, 151.

Hence, research seems to support the idea that traumatic experiences cause a restructuring of cerebral structures which results in a different appraisal of stimuli. Whereas a neutral stimulus, such as a particular color or sound, might not induce any sort of adverse reaction in a person who has not suffered a trauma experience, for the one who has, that stimulus has ceased to be neutral, and, as a result, has acquired a noxious value. However, as Van der Kolk indicates, this judgment is not an occasional or passing assessment, but is rather hard-wired into the very structure of the nervous system and body itself.

Drug-induced perceptual changes

Perceptual changes can be also induced by hallucinogenic drugs. Some of these changes are short-term, and affect what is perceived. For instance, psilocybin, a compound naturally produced by many species of fungi, has been known to induce dramatic changes in perception. As one user described their experience:

> The heavens above me, a night sky spangled with eyes of flame, dissolve into the most overpowering array of colors I have ever seen or imagined; many of the colors are entirely new—areas of the spectrum which I seem to have hitherto overlooked. The colors do not stand still, but move and flow in every direction; my field of vision is a mosaic of unbelievable complexity. To reproduce an instant of it would involve years of labor, that is, if one were able to reproduce colors of equivalent brilliance and intensity[1093].

It is unclear why psychedelic substances would produce such a dramatic array of colors. Perhaps there may be some connection with the dilation of the pupils that occurs with such drugs. In settings with more light, colors appear "more saturated and vibrant"[1094]. With the pupils dilated, naturally more light enters the eye, which,

[1093] D. EBIN (ed.), *The Drug Experience*, Evergreen Black Cat, New York 1965, 330. The text is cited in O. SACKS, *Hallucinations*, 2012, chapter 6 «Altered States» wherein Sacks comments on the strength and vividness of the colors experienced while under the effect of hallucinogenic substances.

[1094] This is apparently common enough knowledge that most paint stores and sellers present it as a given. T. ADAMSON-MCMULLEN, «The Effect Of Light On Color - Wallauer's Paint Center», *Wallauer's Paint Center - Benjamin Moore Paint*, in https://www.wallauer.com/the-effect-of-light-on-color/#:~:text=In%20general%2C%20when%20there%20is,help%20you%20achieve%20truer%20color. [12-3-2024].

combined with a heightened sensitivity to stimuli, might result in the perception of "new colors".

However, present research also indicates that hallucinogenic drugs might also have potential long-term consequences with regard to perception. In her book, *I Feel Love: MDMA and the Quest for Connection in a Fractured World,* Rachel Nuwer reports the research of several scientists studying the effects of these substances. These have found that ketamine, LSD, and MDMA (commonly called Ecstasy) appear to re-open the neurological critical period that generally closes in adulthood, having firmly established behavioral patterns and social behaviors. In other words, these substances seem to encourage neuroplasticity[1095]. This enables patients to "re-visit", as it were, these rooted tendencies and establish new cerebral connections, perhaps increasing subjective emotional empathy[1096]. For this reason, MDMA has been touted as a potential cure for PTSD[1097]. However, this "openness" has also given rise to ethical concerns, as there have been cases of cult leaders using the drugs to "re-program" their followers, taking advantage of this openness[1098]. Research continues regarding the

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[1095] See, for instance: B. D. HEIFETS – D. E. OLSON, «Therapeutic mechanisms of psychedelics and entactogens», *Neuropsychopharmacol.* 49/1 (2024), in 10.1038/s41386-023-01666-5 [12-3-2024], 104–118; D. DE GREGORIO – A. AGUILAR-VALLES – K. H. PRELLER – B. D. HEIFETS – M. HIBICKE – J. MITCHELL - ET AL., «Hallucinogens in Mental Health: Preclinical and Clinical Studies on LSD, Psilocybin, MDMA, and Ketamine», *J. Neurosci.* 41/5 (2021), in 10.1523/jneurosci.1659-20.2020 [12-3-2024], 891–900.

[1096] See, for instance: M. CARLYLE – T. STEVENS – L. FAWAZ – B. MARSH – S. KOSMIDER – C. J. MORGAN, «Greater empathy in MDMA users», *J Psychopharmacol* 33/3 (2019), in 10.1177/0269881119826594 [12-3-2024], 295–304; C. M. HYSEK – G. DOMES – M. E. LIECHTI, «MDMA enhances "mind reading" of positive emotions and impairs "mind reading" of negative emotions», *Psychopharmacology* 222/2 (2012), in 10.1007/s00213-012-2645-9 [12-3-2024], 293–302.

[1097] See A. SLOMSKI, «MDMA-Assisted Psychotherapy for PTSD», *JAMA* 319/24 (2018), in 10.1001/jama.2018.8168 [12-3-2024], 2470: 26 PTSD sufferers were given psychotherapy and two doses of MDMA, each on a separate occasion one month apart: "One month after the second session, 58% of participants in the 125-mg dose group, 86% in the 75-mg group, and 29% in the 30-mg group no longer met diagnostic criteria for PTSD".

[1098] See R. L. NUWER, *I Feel Love: MDMA and the Quest for Connection in a Fractured World*, chapter 8, «A Critical Period». In this book, as well as elsewhere, Nuwer recounts the story of a white supremacist whose views were changed as a result of taking MDMA in a controlled study. See R. NUWER, «How A Dose Of MDMA Transformed A White Supremacist», in https://www.bbc.com/future/article/20230614-how-a-dose-of-mdma-transformed-a-white-supremacist [29-1-2024].

precise mechanism of this openness and the possibility of approved medical applications of such substances.

Conversion experiences

The radical changes that result from conversion experiences have also been subject to study[1099]. How can such a radical re-orientation of a life of sin and despair to one of supernatural hope and charity be explained? The conversions of Saint Paul and Saint Charles de Foucauld are well-known, wherein their value judgments and perceptions of others were radically changed almost instantaneously[1100]. While in some spheres there is significant antagonism between the claims of theology and those of science, in others, the collaboration of theology and neurobiology has given rise to the new field of *neurotheology*[1101].

While religious practices are many and varied, Justyna Herda notes that "it can be stated without any controversy that today the problem is not the question of whether prayer or any other religious experience has its neuronal correlates, as every experience

[1099] See, for instance, C. SHANTZ, *Paul in Ecstasy*, Cambridge University Press 2009 as well as J. KOSS-CHIOINO, *Spiritual transformation and healing*, Rowman Altamira, Lanham, MD 2006.

[1100] See Acts 9:1-22 for the conversion of Paul. The conversion of Saint Charles de Foucauld is no less dramatic: in his words, "Aussitôt que je crus qu'il y avait un Dieu, je compris que je ne pouvais faire autrement que de ne vivre que pour Lui" (cited in A. CHATELARD, *La mort de Charles de Foucauld*, KARTHALA Editions, Paris 2000: 15), a total and radical reorientation of the life of a military officer known for his lack of morality and desire for pleasure.

[1101] "One of the newer areas of research to emerge in recent decades is neurotheology, developed by Andrew B. Newberg, and the neuroscience of spirituality, the popularisers of which are Mario Beauregard and Wayne B. Jonas" See J. HERDA, «The Neurocognitive Foundations of Prayer: A Critical Analysis», *rf* 71/4 (2023), in 10.18290/rf23714.2 [23-7-2024]: 25. She notes well the proper methodology: "The fundamental assumption in the experiments undertaken in neurotheology is that both phenomenological and neurophysiological information is essential for a complete understanding of religious experiences or practices. The adoption of a purely religious or scientific worldview impoverishes our perception of the world to a one-sided perspective" (29). For an overview of these different perspectives, see D. G. BLEVINS, «When Neuroscientists Speak Religiously», (2018), in 10.2307/j.ctvbcd1kg.14 [23-7-2024], 215–240. For a general overview of the methodology of neurotheology, see U. SCHJOEDT, «The Religious Brain: A General Introduction to the Experimental Neuroscience of Religion», *Method Theory Study Religion* 21/3 (2009), in 10.1163/157006809x460347 [23-7-2024], 310–339.

has been characterized by a certain pattern of neuronal stimulation"[1102]. Rather, "in religious experiences there are many factors like neurological, cognitive, historical, social, and cultural which interact": the challenge is to integrate all these elements[1103]. Furthermore, research has also shown that religious experiences also involve the body and the emotions[1104]. While research continues, given the complexity of the changes and the involvement of so many different aspects, it is possible that such rapid changes during religious conversion involve the modification of neural traces, possibly even on a large scale, as so many aspects are affected.

Enactivist Thomism

One concern in incorporating Noë-ian insights for a Fabrian-Thomistic epistemology is to determine what, precisely, the sensorimotor contingencies correspond to. As shown above, the sensorimotor knowledge upon which Noë bases his version of enactivism is implicit, practical, and non-propositional, a quasi-personal habit that falls somewhere between the personal and sub-personal levels. Can this understanding shed light on the Thomistic doctrine of perception? What must first be established is what Aquinas understands by *habit*: is this understanding conducive to the Noë-ian version, or should we look elsewhere? Likewise, in examining *habitus*, we

[1102] HERDA, «The Neurocognitive Foundations of Prayer», 37. See also P. F. CUNNINGHAM, «Are Religious Experiences Really Localized Within the Brain? The Promise, Challenges, and Prospects of Neurotheology», *The Journal of Mind and Behavior* 32/3 (2011), 223–249.

[1103] HERDA, «The Neurocognitive Foundations of Prayer», 38, agreeing with the statement of I. APUD – I. CZACHESZ, «The neuropsychology of religious experience. A review of different scientific approaches to the phenomenon / Neuropsicología de la experiencia religiosa. Una revisión de distintas aproximaciones científicas al fenómeno», *Estudios de Psicología* 40/2 (2019), in 10.1080/02109395.2019.1596373 [23-7-2024], 338–362.

[1104] See, for instance, R. S. NORRIS, «Examining the Structure and Role of Emotion: Contributions of Neurobiology to the Study of Embodied Religious Experience», *Zygon* 40/1 (2005), in 10.1111/j.1467-9744.2005.00652.x [23-7-2024], 181–200. For instance, "The processes that I examine are not limited to religious emotions but underlie all emotional experience; religious emotion is a subset of emotional experience, not a special case. I focus on the importance of these processes in the context of religion. Emotion plays a central role in religion in many ways" (182) and "The body is the medium through which the divine is experienced, the medium for the transcendent, and the means through which religious knowledge and experience are transmitted and learned" (184).

will need to examine the differences between what humans can develop, and what occurs in lower animals.

Habitus in Aquinas

The Thomistic treatise on *habitus* is found in ST I-II, q. 49-54[1105]. Here, Aquinas admits of several usages of the term: in general, as Aquinas states in q. 49, a. 4, corpus, a habit is "a disposition in relation to a thing's nature, and to its operation or end, by reason of which disposition a thing is well or ill-disposed thereto". This disposition is "a disposition of a subject which is in a state of potentiality either to form or to operation"[1106]. However, as Aquinas notes, such a disposition requires three conditions: first, "that which is disposed should be distinct from that to which it is disposed; and so, that it should be related to it as potentiality is to act". If the subject's nature is not composed of potency and act, as in the case of the Divine Nature, then there is no possibility for habits. "The second condition is, that that which is in a state of potentiality in regard to something else, be capable of determination in several ways and to various things". This ontological openness is a requirement: Aquinas gives the example of the heavenly bodies which are in potency to move, but their movements are determined to one motion. A similar, albeit more complicated case, would be animals, whose instincts determine them to one way of action. Thus, neither the heavenly bodies nor animals instincts can have habits. Lastly, "in disposing the subject to one of those things to which it is in potentiality, several things should occur, capable of being adjusted in various ways: so as to dispose the subject well or ill to its form or to its operation".

Earlier in the *Summa* (I, q. 78, a. 1), Aquinas notes that there are five genera or powers in the soul, and these are distinguished by their objects: vegetative, sensitive, appetitive, locomotive, and intellectual. There is a power whose object is simply the body itself, and such powers are vegetative. Two powers regard extrinsic

[1105] See C. CARLISLE, «The Question of Habit in Theology and Philosophy: From Hexis to Plasticity», *Body & Society* 19/2–3 (2013), in 10.1177/1357034x12474475 [1-3-2024], 30–57.
[1106] ST I-II, q. 50, a. 1, corpus.

things that have a "natural aptitude to be united to the soul": these are the sensitive powers as related to the sensible body, and the intellectual powers regarding universal being. Two powers are inclinations and tendencies towards extrinsic things: these are the appetitive powers, which seek something extrinsic as an end, and the locomotive power, which refers to something extrinsic as the end of its operation and movement. For non-rational animals, what is sought is determined by instinct, and hence locomotion is employed instinctually as well. Some animals have the ability to be trained, but that relies on the human's rationality directing the lower animal's instincts and desires.

For this reason, we could say that, in its proper sense, as Carlisle notes, *habitus* is specifically a human quality since it requires an ontological openness to various operations and dispositions[1107]. For this reason, Aquinas rejects that animals can have habits, *simpliciter*, since they are determined by instinct to one certain way of acting and there is no ontological openness to various operations, the second Thomistic requirement for habits. However, through human reason and training, animals can develop habits *secundum quid*. As Aquinas comments in ST I-II, q. 50, a. 3, ad 2: "Animals act from natural instinct: and so in them there are no habits ordained to operations. . . . Whereas by man's reason brutes are disposed by a sort of custom [*consuetudinem*] to do things in this or that way, so in this sense, to a certain extent, we can admit the existence of habits in dumb animals"[1108].

Ezra Sullivan explains the situation in these terms:

> The goal-directed behaviors of animals are caused by instincts, Thomas insists, not by a command of reason or by free choice. The animal acts according to its senses and feelings, not by making syllogisms or intellectually deciding what to do next…. When *habituation as training* underlies animal movement, the rationality of the action is derived from an intentional animal trainer. A trainer shares his or her rationality with the animal by training it to grasp an intention attached to an object or behavior (e.g., a trainer leads a dolphin to estimate "jumping in the air" as a good). Training is something of a science, because properly applied methods often ensure predictable outcomes of animal behavior, but training is also an art, because the individuality of an animal can never be wholly encompassed by general scientific laws. A good trainer

[1107] See CARLISLE, «The Question of Habit», 35.
[1108] ST I-II, q. 50, a. 3, ad 2.

> realizes that one cannot push an animal beyond the limits of the animal's specific powers and individual characteristics. Thus, animal behavior is *nonrational* insofar as the animal acts without knowing the essence or the final goal of what it is doing; but it is *intentional* insofar as the animal participates in the rationality of another by performing an act that a trainer has intentionally directed toward some object of apprehension[1109].

Carlisle notes, however, that, in addition to *habitus*, Aquinas also speaks of *consuetudo*, or *habits of use*: "Aquinas distances himself from Cicero's conception of habit as a 'second nature': those characteristics acquired from frequent usage (*consuetudo*), by mere repetition, should not properly be called habits"[1110].

Consuetudo *in Aquinas*

In a question following the treatise on habit, Aquinas refers to these *customs* or *habits of use*:

> In the interior sensitive powers of apprehension there are some habits. And this is made clear principally from what the Philosopher says (*De Memoria* ii), that in remembering one thing after another, we become used to it; and use is a second nature. Now a habit of use is nothing else than a habit acquired by use, which is like unto nature [*nihil autem est aliud habitus consuetudinalis quam habitudo acquisita per consuetudinem, quae est in modum naturae*][1111].

These habits, often translated as *customs*, appear with some frequency in the Thomistic corpus. In his article on «Instinct and Custom», A. Leo White notes that Aquinas seems to consider custom as "an acquired disposition in the memory that helps guide animal actions to achieve their goal more effectively"[1112]. Citing Aquinas' commentary on Aristotle's *Metaphysics*, White notes that animals have only the slightest participation in experience; repeated memories form *customs* in animals, but, since animals cannot *cogitate*, or compare past individual intentions, they do not have *experience*, properly speaking. The Thomistic text is succinct, and so we re-produce it here:

[1109] E. SULLIVAN, *Habits and Holiness*, CUA Press, Washington, D.C. 2021, 52 and 54.
[1110] CARLISLE, «The Question of Habit», 35.
[1111] ST I-II, q. 56, a. 5, corpus.
[1112] A. L. WHITE, «Instinct and Custom», *The Thomist* 66/4 (2002), in 10.1353/tho.2002.0039 [4-2-2020], 600.

> In men the next thing above memory is experience [*Supra memoriam autem in hominibus ... proximum est experimentum*], which some animals have only to a small degree [*quod quaedam animalia non participant nisi parum*]. For an experience arises from the association of many singular [intentions] received in memory [*Experimentum enim est ex collatione plurium singularium in memoria receptorum*]. And this kind of association is proper to man, and pertains to the cogitative power, also called particular reason, which associates particular intentions just as universal reason associates universal ones. Now since animals are accustomed to pursue or avoid certain things as a result of many sensations and memory, they seem to share something of experience, even though it be slight. But above experience, which belongs to particular reason, men have as their chief power a universal reason by means of which they live.
>
> And just as experience is related to particular reason [in men], and customary activity to memory in animals, in a similar way art is related to universal reason. Therefore, just as the life of animals is ruled in a perfect way by memory together with activity that has become habitual through training, or in any other way whatsoever, in a similar way man is ruled perfectly by reason perfected by art[1113].

Here the importance of both *custom* and *experimentum* begins to emerge. Aquinas' oft-repeated axiom is that the *experimentum* results from the association or collation of many singulars. However, it is not simply past experience *qua* experience that suffices. Rather, there must be the comparative function of the cogitative. Likewise, the division between custom and experience is not hard and fast: just as Aquinas speaks of animals "participating" in experience, although minimally, White also notes that Aquinas sometimes speaks of customs in humans as well[1114]. For this reason, White concludes that "it may be more accurate, therefore, to say that custom is the component of human experience that humans and brutes have in common"[1115]. With this distinction in mind, and given that Aquinas insists on the distinctly human character of *experimentum*, we can turn to examine this third and final term, knowing that we must return to consider the difference between *custom* and *experimentum* later.

Experimentum *in Aquinas*

In his thorough article, «Experience and Experimentation: The Meaning of *Experimentum* in Aquinas», Mark J. Barker analyzes the many and varied uses of the

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[1113] *Commentary on the Metaphysics*, bk. 1, lect. 1, n. 15-16.

[1114] See WHITE, «Instinct and Custom», 600. White cites ST I-II, q. 40, a. 5, ad 1 as an example, but instances abound.

[1115] WHITE, «Instinct and Custom», 600.

word *experimentum*, arguing that the common translation as "experiment" is inaccurate[1116]. Rather, the most complete understanding of what Aquinas intends can be found in the previously cited text from the *Commentary on the Metaphysics*[1117]. After his considerations, Barker concludes that "while the broad sense of *experimentum* includes any act of external or internal sensation, the proper sense refers to an inductive gathering of commonalities by the cogitative power prior to abstraction proper"[1118].

As seen in the text from the commentary to Aristotle's *Metaphysics*, Aquinas reserves *experimentum* in the proper sense and the cogitative power to humans, and the motive is the *collatio* or association of particular intentions. In what does this *collatio* consist, and why does this function require a different interior faculty than memory? Aquinas' division of the internal senses is based on the need to have separate faculties for sense data and for unsensed intentions, as well as separate faculties for reception and retention, as will be seen later. The memory is responsible for retaining intentions, and the cogitative, for receiving them. Still, it is unclear why the *collatio* would belong to the cogitative power.

Thomists have proposed several explanations of this *collatio*, but a particularly comprehensive presentation is that of Anthony Lisska. Basing himself on the *Quaestiones Disputatae de Virtutibus*, q. 2, a. 4, Lisska notes that Aquinas insists on "the formal aspect of the sensible object and the primary substance— the *hoc aliquid*— in which the sensible object belongs as an accidental quality"[1119]. For Aquinas, the formal aspect is necessary for an object to be known. Lisska then argues as follows:

> Of course, here [*Quaestiones Disputatae de Virtutibus*, q. 2, a. 4] Aquinas considers the sensible objects, which have as a formal aspect the proper sensibles; this is why these sensibles are called 'proper' or '*objecta propria*'. The question now comes into play: what is the formal element in the mental act of the *vis cogitativa*? For Aquinas, there is no form of individuation for the primary substance such as one finds in the

[1116] M. J. BARKER, «Experience and Experimentation: The Meaning of *Experimentum* in Aquinas», *The Thomist* 76/1 (2012), in 10.1353/tho.2012.0037 [5-3-2024], 37–71.

[1117] See BARKER, «Experience and Experimentation», 57: "Aquinas's fullest explanation of 'experiential knowledge' (*experimentalis scientia*) follows Aristotle's account in *Metaphysics* 1.1".

[1118] BARKER, «Experience and Experimentation», 71.

[1119] LISSKA, *Aquinas's Theory of Perception*, 311.

> writings of Scotus with the form of *haecceitas*, often translated as 'thisness'. The suggestion put forward here is that the Gestalt-like mental act of the *vis cogitativa* provides this formal aspect in permitting this act of inner sense to perceive this *hoc aliquid* as an existing primary substance. The Phantasms-1 stored in the *vis imaginativa* provide the material component for which the *vis cogitativa* provides the structural awareness by means of its mental act through Phantasm-2. In a similar manner, the mental act of abstraction central to the *intellectus agens* provides the formal aspect of interpretation in making the *species intelligibilis* that then informs the *intellectus possibilis* so that intellectual understanding can take place. One can understand the structural account offered by Aquinas in terms of powers, acts, and objects. The formal aspect of colour—a '*designata*', as Aquinas would say—determines the structure of the visual power so that the act of seeing might occur. Since there is no formal principle of individuality for the *hoc aliquid*—for Aquinas, the principle of individuation is *materia signata quantitate*—a formal element must be provided. This is the important role for the *vis cogitativa* in human perception[1120].

Lisska considers a number of other interpretations as well: he agrees with Cyrille Michon that the work of *collatio* could be considered a proto-thought, but disagrees that it can be considered a judgment in the sense that Aquinas applies the term to the intellect. Rather, what Lisska sees is that the *collatio*:

> is a direct awareness through a Gestalt-like structure enabling the perceiver to be aware of an individual as a member of a natural kind. Michon is correct in suggesting that there is a non-intellectual knowledge—i.e. not pertaining to the intellect—of the particular individual, which would be an awareness of a primary substance. However, the claim of the analysis in this chapter is that this awareness is not a judgement but rather a Gestalt-like perception based on a structured mental act using Phantasm-2…. Since it is correct that at times Aquinas refers to the *vis cogitativa* as the '*ratio particularis*' (particular reason), obviously this might suggest that there is some act of judgement associated with the workings of this internal sense faculty. However, if any sense of judgement is connected with the *vis cogitativa*, it is at best some form of an immediately apprehended intuitive judgement[1121].

Lisska concludes his analysis by summarizing the role of the cogitative power:

> In an explanatory manner, Aquinas accounts for the *possibility* of human perceivers transcending the limits of the proper and common sensibles. This possibility permits perceivers to have an awareness of individual things as individuals of natural kinds and not merely as bundles of sensible qualities. This internal cognitive structure in terms of Actuality-II provides the philosophy of mind machinery that enables the *vis cogitativa* to transcend classical empiricism as well as provides an explanatory content

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[1120] LISSKA, *Aquinas's Theory of Perception*, 312.

[1121] LISSKA, *Aquinas's Theory of Perception*, 313-314. Lisska cites both the *De Anima* commentary as well as the *Quaestiones Disputatae de Anima*, a. 13, as examples where Aquinas states that because the cogitative power is able to perform the *collatio*, it is sometimes called the *ratio particularis*.

> of how this is possible. The *vis cogitativa*, as a built-in cognitive power, is always 'on the go', as it were, seeking to be aware of individual substantive things—the *hoc aliquids*—in the external world[1122].

The cogitative power's *collatio* "permits … an awareness of individual things as individuals of natural kinds", and this based on the intentions. There are three further points to be made:

First, Aquinas' doctrine is consistent as to why animals cannot perform this *collatio*. In DA bk. 2, lect. 13, after mentioning human sensibility is joined to the intellect, Aquinas notes that the situation is different in the lower animals:

> But the lower animals' awareness of individualized notions is called natural instinct, which comes into play when a sheep, for example, recognises its offspring by sight, or sound, or something of that sort. Note, however, that the cogitative faculty differs from natural instinct. The former apprehends the individual thing as existing in a common nature, and this because it is united to intellect in one and the same subject. Hence it is aware of a man as this man, and this tree as this tree; whereas instinct is not aware of an individual thing as in a common nature, *but only in so far as this individual thing is the term or principle of some action or passion.* Thus a sheep knows this particular lamb, not as this lamb, but simply as something to be suckled; and it knows this grass just in so far as this grass is its food. *Hence, other individual things which have no relation to its own actions or passions it does not apprehend at all by natural instinct. For the purpose of natural instinct in animals is to direct them in their actions and passions, so as to seek and avoid things according to the requirements of their nature*[1123].

Animals are bound to their instincts, and likewise the intentions they recognize are instinctual. However, by means of training lower animals can come to know additional individual things, not *qua* individual, but *qua* term of some action or passion.

Second, although the *collatio* is attributed to the cogitative power, human memory also has a special function or power beyond that of animal memory. In several places Aquinas notes that memory in animals simply retains intentions, but in humans there is an additional operation: reminiscence. For instance, in *Quaestiones Disputatae de Anima*, a. 13, Aquinas explains:

> It is necessary that those things which were first apprehended by sense and conserved interiorly be recalled again to actual consideration. This belongs to a memorative power, which operates without any investigation in the case of some animals, but with

[1122] LISSKA, *Aquinas's Theory of Perception*, 314.
[1123] DA bk. 2, lect. 13, n. 397-398. Emphasis added.

> investigation and study in the case of men. Therefore, in men there is not only memory but also reminiscence. Moreover, it was necessary that a power distinct from the others be directed to this end, because the activity of the other sentient powers entails a movement from things to the soul, whereas the activity of the memorative power entails an opposite movement from the soul to things. But diverse movements require diverse motive principles, and motive principles are called powers[1124].

The text is important for two reasons: first, because Aquinas notes that the memory goes "from the soul to things". From the storehouse of intentions, intentions are brought forward to the individual things in the present. Second, Aquinas mentions reminiscence as a specifically human operation. The reason, as we read in ST I, q. 78, a. 4, is that "as to the memorative power, man has not only memory, as other animals have in the sudden recollection of the past; but also *reminiscence* by syllogistically, as it were, seeking for a recollection of the past by the application of individual intentions"[1125]. This is understandable when we recall that non-human animals do not grasp individual intentions *qua* individual but rather only as a term to action or passion. Although Aquinas makes a clear distinction between the animal estimative power and the human cogitative power, there is also an important distinction between animal memory and human memory, a distinction perhaps overlooked since the same term is used for both faculties. However, precisely because the cogitative power grasps intentions differently than the estimative power does, the memory, which is responsible for retaining intentions, is also different between humans and animals. In other words, there is an intimate connection between the two powers.

Thirdly, the result of this *collatio* is the *experimentum* which Aquinas clearly links both to the cogitative power as well as to the memory. As Aquinas words it: "For

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[1124] "Autem requiritur quod ea quae prius fuerunt apprehensa per sensum et interius conservantur, iterum ad actualem considerationem revocentur; et hoc quidem pertinet ad memorativam virtutem, quae in aliis quidem animalibus absque inquisitione suam operationem habet, in hominibus autem cum inquisitione et studio; unde in hominibus non solum est memoria, sed reminiscentia. Necesse autem fuit ad hoc potentiam ab aliis distinctam ordinari, quia actus aliarum potentiarum sensitivarum est secundum motus a rebus ad animam; actus autem memorativae potentiae est e contrario secundum motum ab anima ad res: diversi autem motus diversa principia requirunt; principia autem motuum potentiae dicuntur".

[1125] "Ex parte autem memorativae, non solum habet memoriam, sicut cetera animalia, in subita recordatione praeteritorum; sed etiam reminiscentiam, quasi syllogistice inquirendo praeteritorum memoriam, secundum individuales intentiones".

an experience arises from the association of many singular [intentions] received in memory [*Experimentum enim est ex collatione plurium singularium in memoria receptorum*]"[1126]. The *experimentum* results from the *collatio* performed by the cogitative of intentions that were stored in the memory. What is this *experimentum*, then, on the biological or cognitive level? We have already noted that memory could be explained by neural traces, and it seems that the *experimentum*, as well, could simply be a neural trace that is solidified after time, incorporating the many elements of intention and memory.

This thought is consistent with another, compatible, interpretation offered by Thomists: *experimentum* has also been described as a perceptive schema. As Sanguinetti notes, Fabro makes this activity of the cogitative power to correspond with the Aristotelian ἐπαγωγή (meaning "induction as the process of the genesis of the universal from the multiplicity and mobility of experience and memories," as Sanguinetti defines it) and, most importantly for our study, with the *perceptive schema* as explained by Piaget and Janet[1127].

Unlike the Kantian schema which are *a priori*, the schema proposed by Fabro are "*a posteriori* and understood as living (time enters into them as time for maturation)"[1128]. As Sanguinetti synthetically states:

> The repetitions of experience are non-linear processes of vital maturation, in which, little by little, the perceptive schemas of objectivization emerge…. The schemas (sensitive habits which are not only individual but also cultural and social) are pre-concepts which, once activated, give rise to new ideas in us and recall in a fitting way the constellations of ideas so as to use them fittingly. Without the schema (without language, without fantasy, etc.) one cannot think efficiently.
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> Some schema are pre-verbal, silent, bound to sensitive sequences impressed in the memory, whereas others are verbal or figurative, such as the graphic schema

[1126] *In duodecim libros Metaphysicorum Aristotelis expositio*, edd. M. R. Cathala - R. M. Spiazzi, Marietti, Taurini-Rome 1971[2], bk. 1, lect. 1, n. 15-16.

[1127] J. J. SANGUINETI, «Ermeneutica dell'apprendimento percettivo», *Euntes Docete* 50/1–2 (1997), 209. In this way, Sanguineti neatly summarizes several sections of *Percezione e Pensiero*. For an excellent summary of the development of Piaget's notion of *schema*, see G. D DE CARVALHO JÚNIOR, S. PARRAT-DAYAN, «Recortes históricos sobre a noção de schème em Piaget: o processo de desenvolvimento de um conceito», *Rev. Bras. Estud. Pedagog.* 96/244 (2015), in 10.1590/S2176-6681/361213543 [7-3-2024], 522–540.

[1128] SANGUINETI, «Ermeneutica», 209.

> which serve us in order to guide the course of thought and to actualize the fullness of the cognitive gaze. Their nervous foundation, as Fabro would certainly agree today, are the neuronal circuits studied by neuropsychology[1129].

There is a great deal to consider here. Sanguinetti's take on Fabro's work emphasizes that the schemas are sensitive habits, meaning, they pertain to the internal senses and not to the intellect: this is why they are called pre-concepts or proto-thoughts. Likewise, the development of these schema is non-linear: because they are habits, they are developed and modified over time and in accord with the different experiences and interactions of the subject.

Pre-verbal schema

Let us first consider what Sanguinetti initially notes: that some schema are "pre-verbal, silent, [and] bound to sensitive sequences impressed in the memory". Presumably, Piaget had such a schema in mind when proposing the baby's assimilation of the movements necessary to be breastfed. As Di Paolo notes:

> In Piaget's famous example (Piaget, 1936, 1947) a baby assimilates the mother's nipple into a suckling reflex (itself a sensorimotor structure involving a complex of muscular coordinations, proprioceptive, tactile, temperature and taste sensory feedback, etc.). But a propensity to suck does not typically equate to immediate sucking skill. The baby has to learn to "latch on" successfully, to become comfortable with the shape and feel of her own mother's breast. That is, the baby has to learn new patterns of sensorimotor organization[1130].

This understanding of *experimentum* as the schema proposed by Piaget and Janet also allows a dialogue to take place with sensorimotor enactivism. In his article «Learning to perceive in the sensorimotor approach: Piaget's theory of equilibration interpreted dynamically», Di Paolo and his team note that sensorimotor enactivism insists on the importance of sensorimotor skills, but as of their writing, there had been

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[1129] SANGUINETI, «Ermeneutica», 210.

[1130] E. A. DI PAOLO – X. E. BARANDIARAN – M. BEATON – T. BUHRMANN, «Learning to perceive in the sensorimotor approach: Piaget's theory of equilibration interpreted dynamically», *Front. Hum. Neurosci.* 8 (2014), in 10.3389/fnhum.2014.00551 [7-3-2024]: 3. The references to Piaget are J. PIAGET, *La naissance de l'intelligence chez l'enfant*, Delachaux et Niestlé, Neuchâtel, Paris 1936, and J. PIAGET, *The Psychology of Intelligence*, Routledge, London 1947.

no mechanism proposed by which such skills could be learned. As they note: "Learning to perceive is faced with a classical paradox: if understanding is required for perception, how can we learn to perceive something new, something we do not yet understand?[1131]" The solution, proposes the team, could be found in Piaget's theory of equilibration. In general terms, Piaget proposes different means in which new information can be incorporated into existing schema. These include *assimilation*, wherein "an environmental aspect … is integrated, coupled, or absorbed into an existing physiological … or cognitive/behavioral (sensorimotor, perceptual, reflexive) scheme or structure"[1132]. There is likewise *accommodation*, "the process by which the physiological or cognitive scheme or structure is modulated or transformed to facilitate or encompass a not-yet-assimilated aspect of the environment", as well as *equilibration*, "by which a given cognitive or biological organization, as a result of a maturational process or in the presence of an ever changing environment or any internal sources of tension, reaches a new form of organizational stability"[1133]. These allow not only for the modification of schema with the incorporation of new information, but also for the solidification of the schema once they have been settled[1134]. As Di Paolo and his team conclude, "The proposal is inspired by Piaget's theory of equilibration, but has been given a novel dynamical treatment and formalization. The result is fully compatible with sensorimotor theory (including the previous dynamical analysis given by Buhrmann et al., 2013)"[1135].

What takes place on the neurobiological plane as the schema are modified or solidified? Extensive research has been done, and continues to be done, but studies seem to have established rather firmly that the modification of schema involves the

[1131] E. A. DI PAOLO – X. E. BARANDIARAN – M. BEATON – T. BUHRMANN, «Learning to perceive in the sensorimotor approach: Piaget's theory of equilibration interpreted dynamically», *Front. Hum. Neurosci.* 8 (2014), in 10.3389/fnhum.2014.00551 [7-3-2024]: 1.

[1132] DI PAOLO – BARANDIARAN – BEATON – BUHRMANN, «Learning to perceive», 3.

[1133] DI PAOLO – BARANDIARAN – BEATON – BUHRMANN, «Learning to perceive», 3-4.

[1134] For a clear example, see S. CAREY – D. ZAITCHIK – I. BASCANDZIEV, «Theories of development: In dialog with Jean Piaget», *Developmental Review* 38 (2015), in 10.1016/j.dr.2015.07.003 [7-3-2024], 36–54.

[1135] DI PAOLO – BARANDIARAN – BEATON – BUHRMANN, «Learning to perceive», 13.

reorganization of neural firing and neural networks. One such set of results among many can be found in the conclusion of aptly-titled article «Learning Causes Reorganization of Neuronal Firing Patterns to Represent Related Experiences within a Hippocampal Schema»[1136]. This work on rats trained to find goals in a maze yielded "findings [that] support the view that consolidation involves assimilation of new memories into preexisting neural networks that accommodate relationships among new and existing memories"[1137]. Likewise, the authors of the review article, «The Neurobiology of Mammalian Navigation», examine the ways in which the neural structures of mammals, particularly rodents, develop as they explore and come to know their environments. These "mammalian spatial mapping systems make use of both allothetic cues (space-defining cues in the external environment) and idiothetic cues (cues derived from self-motion)", thus incorporating sensorimotor input into the map[1138].

This experiment allows us to examine how learning works in these lower animals. The rats were trained by humans to seek goals within the maze. It appears that the neurobiological mechanism by which this learning takes place is like what occurs in humans, only that these lower animals require human intervention so as to be able to identify the "goals" in terms of action or passion. Likewise, while learning via sensorimotor schema is essential for humans, animals have less need for such feedback. For instance, given the interactions between the human baby and its mother, there is time for adjustments to be made and sensorimotor learning to take place for the child to learn to latch properly. However, for babies of other animal species, a failure to latch properly usually results in death.

[1136] S. MCKENZIE – N. T. M. ROBINSON – L. HERRERA – J. C. CHURCHILL – H. EICHENBAUM, «Learning Causes Reorganization of Neuronal Firing Patterns to Represent Related Experiences within a Hippocampal Schema», *Journal of Neuroscience* 33/25 (2013), in 10.1523/jneurosci.0879-13.2013 [7-3-2024], 10243–10256.

[1137] MCKENZIE, ET. AL., «Learning Causes Reorganization», 10243.

[1138] S. POULTER – T. HARTLEY – C. LEVER, «The Neurobiology of Mammalian Navigation», *Current Biology* 28/17 (2018), in 10.1016/j.cub.2018.05.050 [22-5-2024]: R1023.

Lastly, it would seem these pre-verbal schema would be what Noë considers as sensorimotor knowledge. As discussed earlier, for Noë this sort of knowledge is not at the personal level, meaning, "conscious, controlled, governed by thought and planning, nor is it properly *sub*personal (automatic, reflexive, independent of thought and understanding)"[1139]. As an example of this sort of knowledge, Noë notes that "developmental psychologist Linda Smith has shown that children and their caretakers participate in organized communication, teaching, and learning at precisely this level of looks, reaches, handlings, nods, and pointings"[1140]. Perception for Noë is a habitual activity that is not entirely sub-conscious, nor entirely willful, an activity that makes use of the implicit, practical, and non-propositional knowledge of how sensorimotor relations between the perceiver and the perceived hold and exist in the world. These descriptions of knowledge seem to apply well to the pre-verbal schema or *experimentum*, as these are not properly intellectual structures, nor are they simply instincts. Rather, they are developed or learned sensorimotor patterns or habits that give an implicit and non-propositional knowledge of how the perceiver relates to the world.

Such patterns and habits could also be cultural and social, as Sanguinetti suggests, meaning, influenced by cultural and social norms and expectations. For instance, it is known that babies and children stare at people more often than adults. While this activity has been explained as a feature of curiosity or of the child's rapidly developing brain, different social and cultural norms also affect the way in which staring is perceived (as acceptable or unacceptable, friendly or unfriendly). Hence, the use of sensorimotor skills can be modified based on these other factors[1141].

Verbal schema

Sanguinetti continues by noting that other schema "are verbal or figurative, such as the graphic schema which serve us in order to guide the course of thought and

[1139] NOË, *Strange tools*, 218n.
[1140] NOË, *Strange tools*, 218n.
[1141] See, for instance, S. UONO – J. K. HIETANEN, «Eye Contact Perception in the West and East: A Cross-Cultural Study», *PLoS ONE* 10/2 (2015), in 10.1371/journal.pone.0118094 [21-9-2024], e0118094.

to actualize the fullness of the cognitive gaze"[1142]. As Lisska notes, the cogitative power provides "an awareness of individual things as individuals of natural kinds and not merely as bundles of sensible qualities"[1143]. This is precisely what Aquinas indicates when he writes that:

> the cogitative faculty differs from natural instinct. The former apprehends the individual thing as existing in a common nature, and this because it is united to intellect in one and the same subject. Hence it is aware of a man as this man, and this tree as this tree; whereas instinct is not aware of an individual thing as in a common nature, *but only in so far as this individual thing is the term or principle of some action or passion.* Thus a sheep knows this particular lamb, not as this lamb, but simply as something to be suckled; and it knows this grass just in so far as this grass is its food[1144].

Hence, because of the cogitative power, humans can recognize this man as Peter, Paul, or my father. On the one hand, the Thomistic mechanism is somewhat vague: what does it mean that the cogitative power apprehends the individual in a common nature, and this because there is an intellect in the same subject? The intellect primarily knows universals, and not particulars: as Aquinas explains in *De Veritate* q. 2, a. 6: "Inasmuch as our intellect, through the likeness which it receives from the phantasm, turns back upon the phantasm from which it abstracts the species, the phantasm being a particular likeness, our intellect gets some kind of knowledge of the singular because of its dynamic union with the imagination".

We find further insights elsewhere in the Thomistic corpus. In ST I, q. 78, a. 4, Aquinas notes that the cogitative power is sometimes called the *particular reason*, since it "compares individual intentions, just as the intellectual reason compares universal intentions". ST I, q. 81, a. 3 adds some additional considerations:

> In man the estimative power, as we have said above, is replaced by the cogitative power, which is called by some *the particular reason*, because it compares individual intentions. Wherefore in man the sensitive appetite is naturally moved by this particular reason. But this same particular reason is naturally guided and moved according to the universal reason: wherefore in syllogistic matters particular conclusions are drawn from universal propositions. Therefore it is clear that the universal reason directs the sensitive appetite, which is divided into concupiscible and irascible; and this appetite obeys it. But because to draw particular conclusions from

[1142] SANGUINETI, «Ermeneutica», 210.
[1143] LISSKA, *Aquinas's Theory of Perception*, 314.
[1144] DA bk. 2, lect. 13, n. 398. Emphasis added.

> universal principles is not the work of the intellect, as such, but of the reason: hence it is that the irascible and concupiscible are said to obey the reason rather than to obey the intellect.

The ST I, q. 81, a. 3 text is clear in referring to solely the cogitative power as the particular reason, and that it is within the cogitative power's power to "draw particular conclusions from universal principles". Curiously, in ST I-II, q. 51, a. 3, regarding habits and, more specifically, if they can be caused by one act, Aquinas admits another, broader understanding of particular reason: "But in the apprehensive powers, we must observe that there are two passive principles: one is the potential intellect itself; the other is the intellect which Aristotle calls passive, and is the particular reason, that is *the cogitative power, with memory and imagination*"[1145]. Additionally, in *De Veritate*, q. 2, a. 6, ad 2, a question that concerns whether the human intellect knows singulars, Thomas makes an interesting contention: "According to the Philosopher, in us the intellect is not the only motive principle. The imagination is also such, and, by its means, the universal knowledge of the intellect is applied to some particular thing to be done. For this reason, the intellect is, as it were, a remote mover, but particular reason and the imagination are proximate movers"[1146]. Here, then, Aquinas attributes the application of the universal to the singular to both the imagination and the cogitative power. It is possible, and indeed likely, that Aquinas mentions the imagination precisely because the aforementioned corpus of the article notes that the intellect can know the singular, at least in a certain sense, through the imagination's phantasm. This, however, seems to be an *immanent* application of the universal to the singular, since the universal is applied to the phantasm of the imagination. On the contrary, it seems that the role of the cogitative power in applying

[1145] "In apprehensivis autem potentiis considerandum est quod duplex est passivum, unum quidem ipse intellectus possibilis; aliud autem intellectus quem vocat Aristoteles passivum, qui est ratio particularis, idest vis cogitativa cum memorativa et imaginativa". Emphasis added.

[1146] "Secundum philosophum in III de anima, non solum intellectus est movens in nobis, sed etiam phantasia, per quam universalis conceptio intellectus ad particulare operabile applicatur; unde intellectus est quasi movens remotum; sed ratio particularis et phantasia sunt movens proximum".

the universal to the singular refers to something that is extrinsic or external to the subject.

By what means does this application take place? Perhaps this application is done by means of language. In several places Aquinas makes the distinction between the mental or interior word and the spoken word[1147]. The former, the mental or interior word, is that "which the one understanding forms when understanding…. What is thus expressed, i.e., formed in the soul, is called an interior word. Consequently it is compared to the intellect, not as that *by* which the intellect understands, but as that *in* which it understands, because it is *in* what is thus expressed and formed that it sees the nature of the thing understood"[1148]. Aquinas emphasizes here that this interior word is not the species or form of the thing understood, since the species is *by* which the intellect understands, and the interior word is that *in* which it understands[1149].

There are two points to note about the latter, the spoken word. First, in comparing Christ the Incarnate Word with the vocal word, Aquinas notes there are some similarities and differences: they are similar in that "a vocal word manifests the interior word as flesh manifested the eternal Word. They differ, however, in the following respect: the flesh assumed by the eternal Word is not said to be a word, whereas the vocal word used to manifest an interior word is said to be a word. Consequently, the vocal word is something other than the interior word"[1150]. The

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[1147] See, for instance, *Super Sent*., lib. 1 d. 11 q. 1 a. 1 ad 4: "Ad quartum dicendum, quod verbum est duplex, scilicet vocale, et verbum mentis"; *De Veritate*, q. 4, a. 1, etc.

[1148] *Commentary on John*, lect. 1. Emphasis added.

[1149] *Commentary on John*, lect. 1: There are three things in the intellect, the second of which is "the species of the thing understood, which is its form, and this form being to the intellect what the species of a color is to the eye". The exterior vocal word does not "signify the species, which is that *by* which the intellect understands" (emphasis added). There is an interesting passage here about the process of the formation of the mental word: "So as long as the intellect, in so reasoning, casts about this way and that, the formation is not yet complete. It is only when it has conceived the notion of the thing perfectly that for the first time it has the notion of the complete thing and a word. Thus in our mind there is both a cogitation [*Et inde est quod in anima nostra est cogitatio*], meaning the discourse involved in an investigation, and a word, which is formed according to a perfect contemplation of the truth". However, this discourse seems to be purely intellectual, and not a function of the cogitative power.

[1150] *De Veritate*, q. 4, a. 1, ad 6.

spoken word manifests, but is not the same as, the interior word. Part of this stems from the causal nature of the interior word and the arbitrary nature of the spoken one: "The interior word is the efficient cause of the word spoken exteriorly, for, since the meaning of a word is arbitrary, its principle is the will"[1151]. Secondly, it seems the relation between the mental and verbal words is one of signification and similarity. In *De Veritate*, q. 4, a. 1, Aquinas describes this relation in various ways: "Moreover, just as there preexists in the mind of a craftsman a certain image of his external work, so also does there pre-exist in the mind of one who pronounces an exterior word a certain archetype of it…. there is that upon which the exterior word is modeled; and this is called *the interior word* which has an image of the vocal word"[1152].

It seems then, the link between the intellect and the cogitative, and the means by which the cogitative can apprehend "the individual thing as existing in a common nature", is the passage from the mental or interior word to the verbal or exterior one. The interior word is that in which the intellect understands and is an image and archetype of the verbal word; yet, the spoken word is also "arbitrary" in the sense that it depends on the will and is not assigned by nature. This is what we can understand from Aquinas.

However, here enactivist neuroscience can shed some light. There is a real sense in which this knowledge of individuals *qua* individuals is overwhelming. After all, the other animals are limited by instinct; if a particular thing is not the term or principle of some action or passion, *à la* Aquinas, it is simply ignored. However, for the child in a crowd of people, all those individuals are recognized as individuals, but how to distinguish all the individuals, one from another, each one calling for attention? It is here that we see the importance of Gehlen's exoneration provided by language: by reducing the individual and particular person who cares for them, provides them with food, tucks them in bed at night, and talks with them throughout the day to the symbol "mother", the child effectively rises above the sensory chaos and tags the one person

[1151] *De Veritate*, q. 4, a. 1, corpus.
[1152] *De Veritate*, q. 4, a. 1, corpus.

in the crowd that is important for them. Indeed, these first verbal schema are often related to family members: mother, father, and siblings. What are these early verbal schema except the *collatio* of repeated experiences of an individual *qua* individual that, on account of cultural or social factors, bears some importance for the child and hence merits an individual label rather than simply a mix of sensory qualities?

This understanding of verbal schema corresponds neatly to both Noë's and Gehlen's understanding of language. Noë contends "that language and activity are interwoven; that languages are particular aspects of our engagement with situations—is something we constantly encounter"[1153]. Indeed, language seems to arise particularly as an engagement with the world and the individuals that surround us; as seen earlier, language, in its turn, is also responsible for modifying the way in which we perceive the world. Likewise, Gehlen contends that "language relieves motor skills: we can respond to things in sound and so no longer need to engage in action"[1154]. This is seen clearly with the child in the crowd: the child does not need to be tucked in, fed, or spoken to so as to distinguish "mother". The shout of "Mom!" in the crowd is sufficient to invoke that individual *qua* individual, without any further action or proof necessary.

Conclusion

Ultimately, if we compare the Thomistic notion of habit with Noë's usage of the term, it seems that Noë's habitual knowledge corresponds to the pre-verbal schema form of the *experimentum*. Irrational animals can be said to participate in experience or this habitual knowledge only insofar as they have an ontological openness to training by a human (for instance, we train dogs to sniff for explosives and drugs, because they are able be trained to associate those particular smells with a reward, but we do not train dolphins to do so, because they lack the sensory structures to be able to smell, nor do we train earthworms, because, although they might be able to smell, they cannot

[1153] NOË, *Out of Our Heads*, 103.
[1154] GEHLEN, *Man*, 186.

hear and cannot be trained)[1155]. The neurobiological basis for these schema would appear to be neural traces which are strengthened, modified, or allowed to weaken. The verbal schema in particular seems to be a uniquely human way to isolate the individual and to be exonerated from the overwhelming sensory input.

À propos *the Thomistic division of senses and faculties*

Given the close intertwining and mutual dependence of the sensorimotor system with experience, the cogitative power, and the higher intellectual powers, it could be asked whether the standard Thomistic model of five external and four internal senses could be more accurately presented as one holistic perceptual system. Such debate is nothing new to Scholastic philosophy. As Klubertanz notes, philosophers up to Aquinas differed greatly regarding the number of internal senses. For instance, Al-Farabi occasionally argued for just one internal sense, Algazel for five, and Avicenna for seven (which could be combined or reduced into three, four, or five)[1156]. Likewise, Albert the Great argues for five internal senses, but presents at least four different divisions or classifications of them[1157].

From where stem these different divisions? In more recent research, Pekka Kärkkäinen indicates that medieval Islamic philosophy, particularly in Avicenna, provided the concept of the internal senses[1158]. Avicenna argued for five internal senses, arguing that separate faculties are needed for forms and intentions, for receiving and storing, and for "active processing of objects"[1159]. Hence, the division of internal senses is as follows: the common sense for receiving forms, the retentive imagination

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[1155] See, for instance, L. ZIRBES – M. MESCHER – V. VRANCKEN – J.-P. WATHELET – F. J. VERHEGGEN – P. THONART - ET AL., «Earthworms Use Odor Cues to Locate and Feed on Microorganisms in Soil», *PLoS ONE* 6/7 (2011), in 10.1371/journal.pone.0021927 [21-9-2024], e21927.

[1156] See KLUBERTANZ, *The discursive power*, 107, 122.

[1157] See WOLFSON, «The Internal Senses in Latin, Arabic, and Hebrew Philosophic Texts», 116-117.

[1158] P. KÄRKKÄINEN, «Internal Senses», in H. LAGERLUND, *Encyclopedia of medieval philosophy*, Springer Science & Business Media, Dordrecht 2011: 564-567. For this section, we follow Pekka's succinct analysis.

[1159] KÄRKKÄINEN, «Internal Senses», 565.

for storing forms, estimation for receiving intentions, the sensitive memory of storing intentions, and the compositive imagination for the active processing and combining of forms. Avicenna also attributed these various functions to particular ventricles of the brain.

Averroes re-worked the Avicennian division, combining the two imaginations, and attributing the estimative power in animals to the imagination. However, in place of estimation, in humans Averroes proposed the cogitative power, which abstracts intentions. Likewise, it is unclear whether Averroes considered the common sense to be an interior sense.

Both Albert the Great and Thomas Aquinas based themselves on Avicenna's divisions, but incorporated elements from Averroes as well. In ST I, q. 78, a. 4, Aquinas adopts a four-fold division with a logic like Avicenna's[1160]. For Aquinas, there should be separate faculties for receiving and retaining, as well as for the forms and the intentions. The first division stems from the nature of matter: in *De Veritate* we read that "in physical things, to receive and to retain are not reduced to the same principle, but the former is referred to the wet and the latter to the dry"[1161]. The second division arises from the different objects: one object is the sensible, a different object is the unsensed intention. Hence, for the receiving of forms, there is the common sense, and for the retention of those forms, the imagination. For the receiving of intentions, there is the estimative power in animals and the cogitative in humans, and the memory for the retention of those intentions. Rather than follow Avicenna's lead in dividing the imagination into retentive and compositive, Aquinas argues simply that "this operation is not to be found in animals other than man, in whom the imaginative power suffices thereto"[1162].

[1160] Similar argumentation can be found in *Quaetiones disputatae de Anima*, q. 13.

[1161] *De Veritate*, q. 15, a. 1, corpus.

[1162] ST I, q. 78, a. 4, corpus. See the commentary by Lisska in *Aquinas's Theory of Perception*, chapter 9. Noting that Avicenna and Albert the Great both propose a separate *phantasia*, Lisska notes "It may be that Aquinas's combination of these two functions into one faculty is his use of Occam's razor" (224).

In a similar way, a re-presentation of the perceptual systems is not without precedent in Thomistic circles. In his *Cognitive Psychology*, Thomas Verner Moore notes that, while the Scholastics divided the *sensus communis* from the estimative and cogitative powers, "it may be pardonable in the present state of psychological analysis to discuss both functions under the heading: synthetic sense"[1163]. Moore notes that this synthetic sense is called "*synthetic* because it binds together the elements of a complex presentation" and is "*sensory* because the presentation is sensory and is not itself a knowing or an interpretation or a meaning"[1164]. Nevertheless, Moore maintains that this synthetic sense is distinct from memory. In his *Percezione e Pensiero*, Fabro responded to Moore's proposal by arguing that the experimental data rather supports the Thomistic division, and that even if Moore wants to claim a "synthetic sense" he is forced to admit that this synthesis takes place in steps that correspond, roughly, to the Thomistic divisions between formal and intentional senses[1165]. Both Fabro and Moore rely on studies of various diseases and pathological conditions to support their view, in particular, lesion studies. For instance, Moore reports a patient who was unable to connect a series of images into a coherent story, as well as patients with tactual agnosia, meaning, they could feel objects normally but were unable to recognize them by touch, a lack of knowledge sometimes corrected by placing the object in the other hand[1166]. In all instances, these conditions were the result of injuries or pathologies that affected the brain. These studies indicate that brain functions do become compartmentalized after time, and that tumors and other pathological conditions can interfere with normal perception.

[1163] MOORE, *Cognitive Psychology*, 238 n. 1.
[1164] MOORE, *Cognitive Psychology*, 241.
[1165] See FABRO, *PP*, 154. Likewise, 162-163, where, speaking of Moore, Fabro notes: "Pare allora che tutta questa posizione del problema fatta dall'illustre studioso sia proprio una continua ed evidente conferma della teoria arabo-tomista, e lo stesso P. Moore si è piegato a distinguere una sintesi sensoriale primaria ed una sintesi sensoriale secondaria, l'apprensione dei contenuti figurali e l'apprensione del significato, ovvero l'interpretazione della figura come oggetto".
[1166] See MOORE, *Cognitive Psychology*, 256-257 and 260-261.

However, if Moore and Fabro desire to use pathological conditions to clarify the distinctions between the various senses, it would seem this criteria should also apply to the external senses. Although it was published in 1939, Moore's text already acknowledges the existence of rods and cones in the eye, as well as Meissner's, Pacinian, bulboid, and Ruffini corpuscles in the skin[1167]. Pathological conditions, such as color blindness and congenital insensitivity to pain, affect the reception of a particular sort of sensory data, but not of the sense *tout court*.

Likewise, sometimes perception is affected by apparently non-sensory mutations. Recently, researchers found that those humans who lack the protein α-actinin-3 are more tolerant of the cold than those with the protein[1168]. This protein is not linked to thermoreceptors; rather, "the sarcomeric protein α-actinin-3 resides in the Z-discs of fast-twitch skeletal muscle fibers, where it cross-links the actin filaments of adjacent sarcomeres"[1169]. The result is that the "muscles of XX individuals [that is, those without the α-actinin-3 protein] displayed a shift toward more slow-twitch isoforms of myosin heavy chain (MyHC) and sarcoplasmic reticulum (SR) proteins, accompanied by altered neuronal muscle activation resulting in increased tone rather than overt shivering"[1170].

In other words, there are many factors that can influence what an individual perceives. These factors can be genetic, affecting the sensory organs and neural

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[1167] See MOORE, *Cognitive Psychology*, 216, 218.

[1168] V. L. WYCKELSMA – T. VENCKUNAS – P. J. HOUWELING – M. SCHLITTLER – V. M. LAUSCHKE – C. F. TIONG - ET AL., «Loss of α-actinin-3 during human evolution provides superior cold resilience and muscle heat generation», *The American Journal of Human Genetics* 108/3 (2021), in 10.1016/j.ajhg.2021.01.013 [11-3-2024], 446–457. As their summary notes, the mechanism concerns thermoregulation: "here, we show that humans lacking α-actinin-3 (XX) are superior in maintaining core body temperature during cold-water immersion due to changes in skeletal muscle thermogenesis. Muscles of XX individuals displayed a shift toward more slow-twitch isoforms of myosin heavy chain (MyHC) and sarcoplasmic reticulum (SR) proteins, accompanied by altered neuronal muscle activation resulting in increased tone rather than overt shivering" (446).

[1169] V. L. WYCKELSMA – T. VENCKUNAS – P. J. HOUWELING – M. SCHLITTLER – V. M. LAUSCHKE – C. F. TIONG - ET AL., «Loss of α-actinin-3», 446.

[1170] V. L. WYCKELSMA – T. VENCKUNAS – P. J. HOUWELING – M. SCHLITTLER – V. M. LAUSCHKE – C. F. TIONG - ET AL., «Loss of α-actinin-3», 446.

pathways directly or even other aspects that seem unrelated to perception. Likewise, these factors are cultural and linguistic, as shown above, and can also change with the age, development, and memory of the perceiver. While it is true that Aquinas divides the interior senses into four, he has effectively isolated these various functions and reduce their interactions to definable and predictable movements. However, the current scientific reality indicates that the interaction between the different interior senses is much more complicated, and yet, in a sense, simpler than Aquinas could have imagined. In this regard, while Aquinas' division still serves to speak of general functions that take place within the perceiver (namely, perception as present, perception as absent, perception as valued in present, perception as valued as absent), it would perhaps be more accurate to speak simply of the body, with its external and internal senses and even its sensorimotor capabilities, as one perceptual system with various functions that overlap and interact in ways that we are only now beginning to understand more fully.

Indeed, we have seen, for instance, the storage of information and its recall cannot be separated; all is contained with one neural trace. To recall the past information is also to subject it to present conditions, to consider its value and what it affords, as well as to see it as a whole. In other words, while we can distinguish information that our external senses obtain (which, again, is a more complicated division than Aquinas imagined), all of this is combined in the brain. Evidence suggests that it is all incorporated into a single or several similar neural traces: to speak of an object as past, helpful or harmful, present or absent, will refer to the same neural trace, and hence it could be said that the neural trace is the fMRI or neurobiological equivalent of the perceptual schema.

With that in mind, however, scientific evidence does indicate there is a functional difference between having the object present as opposed to recalling it. In their study, Linde-Domingo and his colleagues found "highly consistent evidence" that the flow of information in the brain occurs from low-level perceptual features (photograph vs. drawing) to high-level conceptual features (animate vs. inanimate)

when the object is present, whereas the opposite is the case during object recall: the information flows from high-level conceptual features to low-level perceptual features[1171]. This does not necessarily invalidate the hypothesis that there is just one internal sense; rather, it indicates that perhaps the one neural trace begins with low-level features (such as the common sense and imagination would grasp, per Aquinas) and later incorporates high-level features (such as what the cogitative and memory would add, per Aquinas), and that higher features, which are presumably more distinctive or specific, allow for easier recall. Rather than attribute these aspects to different interior faculties, it might be more plausible simply to consider that this is the natural path for the formation of the neural trace, a fact that perhaps Aquinas unwittingly acknowledged by proposing that information first comes through the common sense and imagination and then to the cogitative and the memory, but in memory we go from "the soul to things"[1172].

Recently scholars also suggest the single internal sense view has precedents in the thought of Francisco Suárez. In his interpretation of Suárez, Daniel Heider claims the Jesuit theologian maintains that there is only one internal sense with many different functions[1173]. This reduction is based primarily on two principles: senses should not be multiplied without reason, and there should be an equal number of senses in humans as well as in nonhumans[1174]. As Heider summarizes: "Perfect nonhuman animals are endowed with a sensory nature having a perfection that is proper to their order. If there

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[1171] J. LINDE-DOMINGO – M. S. TREDER – C. KERRÉN – M. WIMBER, «Evidence that neural information flow is reversed between object perception and object reconstruction from memory», *Nat Commun* 10/1 (2019), in 10.1038/s41467-018-08080-2 [21-9-2024].

[1172] *Quaestiones Disputatae de Anima*, a. 13.

[1173] D. HEIDER, *Aristotelian Subjectivism. Francisco Suárez's Philosophy of Perception*, Springer 2021, in particular chapter 5 «Internal Senses», 217-254. Broadly speaking, "The denial of the real distinction between the sensed and the non-sensed species and the emphasis on the perceptual interconnectedness of the sensible qualities and the (practical or action-oriented) intentions lead Suárez directly to his reductionist account of the number of the internal senses" (230). See also the review of S. SCHMID, «Aristotelian Subjectivism: Francisco Suárez's Philosophy Of Perception», *Notre Dame Philosophical Reviews*, in https://web.archive.org/web/20240722170939/https://ndpr.nd.edu/reviews/aristotelian-subjectivism-francisco-suarezs-philosophy-of-perception/ [22-7-2024].

[1174] See HEIDER, *Aristotelian Subjectivism*, 235.

is an operation in humans that is more perfect than that of perfect nonhumans, this is not a reason to add a new interior sense in nonrational animals"[1175]. In other words, rather than posit a special "cogitative" power that is superior to the estimative power in animals, any features or functions above those of lower animals should be attributed to the intellect.

It is for precisely this reason that many of the functions generally attributed to the cogitative or estimative power, such as "the ability to engage in forms of (quasi-) reasoning and practical deliberation—are relegated to the intellect by Suárez"[1176]. While Suárez might be correct to claim there is simply one internal sense, it is clear from the neurobiological studies that language, the grasping of intentions, and the formation of schema are not part of the intellect, since they form neural traces. The scientific evidence indicates that these functions of the internal senses, while they can be reduced to a single interior sense, should not be reduced to the intellect.

What is the Thomistic phantasm in this new vision? It is the activation of a neural trace, a neural pathway that contains all the information incorporated together. We can speak of the past, of values, and of all sorts of different features, but this is, in essence, the phantasm. It is semi-stable, in that it is not subject to quick changes, but is plastic enough to incorporate new information.

Conclusion

After having considered the methodology of enactivist neuroscience and, in particular, our approach to using neuroscientific data in support of their theses, we examined whether there could be a fruitful dialogue between Aquinas and enactivism. After studying the theoretical context of enactivism, as well as the various schools of enactivist thought that arise from it, we opted for the sensorimotor school under the particular influence of Alva Noë in order to attempt our dialogue.

[1175] HEIDER, *Aristotelian Subjectivism*, 235.

[1176] S. SCHMID, «Aristotelian Subjectivism: Francisco Suárez's Philosophy Of Perception», *Notre Dame Philosophical Reviews*.

After examining the key concepts used by Noë's sensorimotor enactivism, in particular perception and enactivism. For Noë perception "*is an activity of exploring the world drawing on knowledge of sensorimotor contingencies*"[1177]. This knowledge is at the embodied level, and is implicit, practical, non-propositional, and quasi-personal. In order to enter into dialogue with Aquinas, we saw his use of the terms *habitus*, *consuetudo*, and *experimentum*, and saw that the third, with non-verbal schema, corresponds best to what Noë is referring to. Indeed, Di Paolo considers these sensorimotor contingencies to be the schema envisioned by Piaget, and Fabro considered Piaget's schema to be the *experimentum.* In this, there is area for dialogue. Indeed, we applied this insight to consider language as a possible sensorimotor schema, as well as the connection of the affective responses of our schema. It was also noted that it might be better (and more scientifically precise) to simply refer to the body, with its senses, both external and internal, as one "sensory system", given the complex interplay and mutual influence of all the various parts. Lastly, we considered how these schema could possibly be modified by the influence of traumatic experiences, chemical compounds, or conversion experiences.

[1177] NOË, «The enactive approach: a briefer statement», 960. Emphasis in original.

Conclusion

At this point in our studies, we can indicate, first, specific conclusions which can add to the discourse regarding these topics, second, points that provide particular interest, and third, aspects that can be subject to future research.

Specific conclusions

At the end of our research itinerary, we can summarize our conclusions, chapter by chapter, that add to the current discussion regarding the topic of perception. It must be noted that a particular novelty of our work is its interdisciplinary approach and methodology. Indeed, we offered a novel insight for when an interdisciplinary method is required, and how to make this determination. This methodology required both attention and precision in establishing 1) the different criteria that each discipline uses to gather its *facts*, 2) the *theoretical context* that each discipline accepts to explain those facts, and, with this foundation, 3) to *clearly define* the concepts to be used. Hence, each chapter presents a systematic study of the understanding of various aspects of perception according to the school of thought itself. The first chapter presents the thought of Aquinas regarding perception, particularly regarding the cogitative power as understood by Cornelio Fabro. The second chapter examined the work of Maurice Merleau-Ponty and his insights regarding the role of the body in perception. The third chapter, concerned with the ecological psychology of J. J. Gibson, examined the notions of affordances and of direct perception. The fourth and final chapter considered Alva Noë's sensorimotor enactivism, a school of thought particularly interested in the role of action and movement in perception. However, the result we hoped for is a truly interdisciplinary dialogue regarding perception, a dialogue that respects the various disciplines in their differences but also in their unique contributions.

The vis cogitativa *of Aquinas and its object according to Fabro*

As noted in both the introduction and the first chapter of our present work, many scholars have underscored the importance of Cornelio Fabro's work on the cogitative power. However, previously scholars have focused on only a few articles or books by the Italian philosopher, and consequently have left in the shadows the Fabrian insights that are scattered throughout his *oeuvre*. Since our preparatory research, which traced the mentions of the power throughout all his major publications and even some unpublished works, revealed that Fabro's doctrine on the cogitative power has not undergone dramatic changes through his productive years, our presentation of ten key functions of this internal sense is a first attempt at a synthetic presentation of the Fabrian position regarding the cogitative power throughout the whole of his intellectual trajectory[1178]. It should be noted that all these functions revolve around the unsensed intentions, which are the object of the cogitative power. The importance of this power lies precisely in its participation in the intellect together with its connection with the material here and now.

Taking the notion of participation and the continuity of being as our hermeneutical principles, we were able to see how the Neoplatonic *exitus – reditus* structure sheds light on the functions of the cogitative power *vis-à-vis* the intellect as well as the lower faculties. This dynamic circle places the cogitative power as the bridge between the sensible and intellectual worlds, allowing the power to both present information from the senses to the intellect, as well as shape the formation of the *experimentum*. Furthermore, as a sensitive power, the cogitative allows for the integration of the influence of the passions and other bodily aspects.

As Fabro contends, the cogitative power, "like *esse* of the *ens*, has since been forgotten by [the Thomistic] school; the two forgotten aspects belong to and unify each other"[1179]. Just as Fabro was responsible for the recovery of the notion of *esse* as *actus*

[1178] For these ten functions, see the list on pages 101-102 and the subsequent explanations from 102-122.
[1179] FABRO, *IST*, 147.

essendi, our work has revealed that he also recovered the importance of the cogitative power for Thomistic epistemology. In particular, we have highlighted the importance of the cogitative power in both the formation of the *experimentum* as well as in the persuasion of existence.

Phenomenology and the body according to Merleau-Ponty

The secondary literature presents us with numerous attempts to bring Aquinas and Merleau-Ponty into dialogue. As we pointed out, unfortunately these efforts often confuse the methodologies and ignore the very different meanings given to the same term. By examining what Merleau-Ponty meant by terms such as "perception", "body", and "body schema", we were able to lay a foundation that revealed the similarities and differences with Aquinas' understanding.

Of particular importance was the introduction into the secondary literature of our use of Fabro's *Essere nel corpo*: with this, we have presented a new way of bringing these two thinkers together by means of the cogitative power. This was done at the suggestion of Fabro, who referred to this faculty as "the capacity for apprehending concrete values of 'lived life', and it would be more precise to say of the 'lived body'"[1180]. In examining the implications of this phrase, we noted how Fabro's insights allow for the values perceived by the cogitative power to be both subjective and dynamic.

Consequently, the important conclusion from this chapter is that the human perceiver is necessarily an *embodied* perceiver, with the body playing an important role in perception. This, coupled with Merleau-Ponty's insights regarding the body, the object of perception, and the body schema, are intuitions which serve to enhance the Thomistic understanding of perception, especially the role and importance of the *experimentum* and how the cogitative power and the *sensibili per accidens* can account for what Merleau-Ponty attributes, and rightfully so, to the body. In this way, Merleau-

[1180] FABRO, *Essere nel corpo*, 113.

Ponty's explanation of how bodily factors can affect the way we perceive by altering the values of objects can be brought into the Thomistic framework.

Lastly, we examined the important Merleau-Pontian notion of the "body schema" and how it is affected by various pathologies, particularly hallucinations in general and phantom limbs. We were able to draw parallels between these phenomenological insights and the explanations that Aquinas gives of similar phenomena, linking these with the body.

The *exitus – reditus* structure that we had noticed in the first chapter can also incorporate the insights of Merleau-Ponty. In a very particular way, it is by means of the body that the intellect extends itself into the world and returns back to itself. In this way, the body in general and the cogitative power in particular serve as instruments of the intellect. As with other bodily instruments, they can be subject to illusion and illness, but nevertheless they are the necessary steps in the intellect's outreach to the world and return to itself.

Affordances and J. J. Gibson's ecological psychology

Recent secondary literature has also considered the theory of affordances as presented in J. J. Gibson's school of ecological psychology and possible Thomistic integrations with this school of thought. An important contribution is our study of the notion of affordances within the ecological school itself, and particularly the insights revealed by E. J. Gibson. There has been long-standing debate regarding what J. J. Gibson meant by "affordance", and the secondary literature seems to ignore the contributions of his wife.

From here, we analyzed the notions of perception and affordances and were able to propose the notion of affordance as relation which, although present in the secondary literature, has become for us the bridge between Aquinas and ecological psychology. Gibson's thought presents perception as a process that involves the whole body and relies on movement to pick up information. Together with the notion of affordance as relation, we were able to consider how attention, language, and learning,

particularly in terms of movement and sensation, take place and in turn incorporate these aspects into a Thomistic understanding of perception using the works of Aquinas and of Fabro.

Worthy of particular mention are the studies of attention and language. The first presents a comprehensive view of the many factors involved in attention, both "bottom-up" and "top-down". The second provides a great deal of study regarding the use of signals and symbols as examples of indirect perception, and how the use of these is different in irrational animals and humans. Likewise, it was shown that language affects perception, just as movement and perception shape language.

While the chapter on Merleau-Ponty was concerned with the body as part of the *exitus – reditus* structure, here affordances shed light particularly on the *sensibli per accidens,* the object of the cogitative power. Nevertheless, here, too, we have shown how the body and its various aspects affect the way that the perceiver comes to know and understand the world around him. Once again, it is the cogitative power that regulates and guides these many functions.

Movement and action in Alva Noë's sensorimotor enactivism

In our fourth and final chapter, we examined the possibility of integrating sensorimotor enactivism into our interdisciplinary study of perception. A concrete contribution is the study of the various schools of enactivism. Having examined these various schools, we chose Alva Noë's work for our interdisciplinary study. We also noted our reasons for breaking with certain aspects of his thought, namely, his rejection of neurobiological considerations which we instead wished to incorporate, particularly in the form of neural traces.

We were able to examine what sensorimotor contingencies mean for Noë, and then explained how these would be understood in terms of Thomistic thought. In particular, we propose that such a contingency can refer to a pre-verbal *experimentum*. Likewise, language could be considered as an *experimentum* that incorporates sensorimotor aspects. These *experimenta*, in turn, could correspond to particular neural

traces, which would provide neurobiological foundations for the emotions as well as changes that take place as a result of injury, trauma, drug use, and many other such factors. In this way, the plasticity of perceiver's neural structures are explained.

Finally, given that the cogitative power is an internal sense, and hence bound to a material organ, we examined how various aspects of the phantasm, such as the sensible factors as well as stored intentions in the memory, might be included in the neurobiological structure of the brain as a neural trace. Given that the neural trace incorporates a wide variety of factors that Aquinas attributes to the various faculties, we present the contention that, rather than speak of various internal senses, it would be more accurate to speak of neural networks and traces that incorporate the various aspects and objects that Aquinas separates.

Here, as well, we see the *exitus – reditus* structure come into play, as the *experimentum* that emerges in the form of a neural trace not only receives information from the external world and other senses, but, at least for Aquinas, is shaped by the intellect. In a particular way, we can see how the various neurobiological aspects reveal the inner workings of the *experimentum* that Aquinas proclaimed the existence of and attempted to explain their arising.

Points of particular interest

Having examined the concrete conclusions of our research, there are also some aspects which should receive particular notice, namely: 1) the cogitative power; 2) an adequate methodology; 3) attention, and; 4) language.

The importance of the cogitative power

Throughout our research, the importance and versatility of the cogitative power has emerged very clearly. We have seen that, for Aquinas, the object of the power is the *sensibili per accidens* and that the cogitative power is responsible for the formation of the *experimentum*. However, it is the merit of Fabro to have emphasized the importance of this power. As mentioned earlier, Fabro notes that just as there has been

a *Seinsvergessenheit*, there has also been a *Cogitativasvergessenheit*: "like *esse* of the *ens*, [the cogitative power] has since been forgotten by [the Thomistic] school; the two forgotten aspects belong to and unify each other"[1181]. For Fabro, the cogitative is the key to lived life, because it provides the link between the sensible world and the intellectual one. While humans are superior to animals because of the intellect, they are also superior because the cogitative power allows them to apply that universal knowledge and to organize their intentions, experiences, and values in a way that is simply impossible for lower animals. In a particular way, we have seen how the cogitative power is responsible for incorporating much of what Merleau-Ponty attributes to the body in perception, the affordances of which J. J. Gibson speaks can be considered as relations in the Thomistic sense and hence grasped by the cogitative power, and many of Noë's insights regarding sensorimotor contingencies in perception can be explained by reference to the cogitative power's ability to form *experimenta* and thus incorporate these contingencies into schema and neural traces, the modern equivalent of the *experimenta*.

The various functions taken from Fabro's works, especially from his course *Essere nel corpo*, are an essential point of this recovery of the cogitative power. Indeed, the cogitative power is the center of the "lived life" of each individual. While the senses provide us with the *forma* of objects, and the intellect abstracts universal notions, the realm of *intentio*, the domain of the cogitative power, is where the individual notions and the relative values and experiences enter in. The cogitative "relativizes" our lives and our experiences, and is, in a very profound sense, the source of our individuality.

[1181] FABRO, *IST*, 147. "*Cogitativasvergessenheit*" is a neologism, but emphasizes the severity of the Thomistic school's neglect of this faculty. In his *Geist in Welt*, Rahner simply uses "cogitativa": e.g., section titles include «Die cogitativa als dan 'sinnliche' Vermögen der conversion» and «Die cogitativa in ihrer spezifischen Sinnlichkeit»: cf. K. RAHNER, *Geist in Welt*, Verlag Herder, Freiburg im Breisgau 1998.

An adequate methodology

Our study of perception has been conducted based on an interdisciplinary methodology. This is a point of supreme importance, because this methodology permits the various fields to contribute to the overall understanding of perception, but, at the same time, it avoids the pitfalls of many attempts to integrate the various sciences. It was noted that, particularly in the attempts to integrate Aquinas and Merleau-Ponty, a hasty combination of the two schools of thought, without regard to the methodologies proper to the sciences and to the meaning of words, resulted in less than satisfactory results. Hence, it is pivotal to emphasize, once again, the importance of a sound interdisciplinary methodology.

Attention

The problem of attention appeared in the third and fourth chapters. Each of the sciences utilized in this thesis has emphasized different aspects of these complex problems, and the problem of attention can only be fully appreciated and understood in the light of a solid interdisciplinary methodology that permits the sciences to engage each other and produce coherent results.

Ecological psychology gives great importance to the role of attention in perception. We examined many of the key distinctions offered, not only by J. J. Gibson, but also those raised by his wife, E. J. Gibson. Then, we added additional elements from Aquinas and Fabro regarding the limitations of both the estimative and cogitative powers as well as the various sorts of intentions that can attract our attention. As a result, we were able to construct models of attention for both irrational animals and humans, incorporating both "top-down" and "bottom-up" factors. In this way, attention becomes a particularly salient example of the *exitus – reditus* structure that was of critical importance in Aquinas' thought.

While we dealt less extensively with attention in the work of Noë, nevertheless his work presented several other factors to be incorporated into our study of attention.

These factors included change blindness, that is, that we fail to perceive changes that we are not looking for, as well as considerations regarding how we can direct our attention to those things that are physically absent.

Language

The reciprocal influence of language and perception also appeared in numerous chapters. In the first chapter, we examined Fabrian insights regarding the cogitative power's ability to incorporate individual and social aspects into behavior and judgment. This incorporation, accomplished by means of the *experimenta* or schema, provides a pivotal link for understanding language.

Language occupied Merleau-Ponty's philosophical inquiries for a number of years and resulted in the production of various books and articles. We noted the importance that Merleau-Ponty assigns to language for the perception of others and how he examines the development of the use of language in children. From here, the role of language in the development of the body schema, as well as language under pathological conditions, made it clear that there is a profound connection between language and the body. In this way, we were able to draw parallels between the views of Merleau-Ponty and Aquinas regarding language use and development, as well as the effects of pathological conditions.

J. J. Gibson's understanding of language falls within the context of indirect perception, wherein affordances are made present in some sense. For instance, the warning cries of many species conveys information about the predator nearby, even if the other members of the community have not perceived it directly. Gibson's insights shed light particularly on animal communications, although the level of abstraction found in human language is much greater.

Alva Noë contends that language is a very special sort of sensorimotor schema, one that is intimately connected with our surroundings and our culture. Additional research has shown that language influences the way the brain processes information and perceives. These conclusions were considered in light of the cogitative power,

particularly as a form of a verbal schema which has the ability to influence the way information is processed.

What is of importance is to realize the very "sensitive" or material nature of language. Often language is considered abstract or intellectual, and, while there are certainly intellectual or abstract elements involved, there is much of language that is material or sensible. With our study, we hope to have shed light on this material aspect, and to have shown that this agrees with Aquinas' vision of the human person.

Points for future research

While our research has reached its end, and has contributed to the current discussion regarding perception, there are also aspects that remain for future studies and further research. We can indicate, to the best of our knowledge, five possibilities: 1) the cogitative power's role in the persuasion of existence; 2) the ontological status of language; 3) attention and movement in perception; 4) integration with the various other schools of enactivism, and; 5) the perception of art.

The cogitative power's role in the persuasion of existence

Fabro insists that the "persuasion of existence" pertains to the cogitative power in its connection to the real world. In a particular way, he attributes to this power the act of natural faith. Although research has been done regarding the act of faith, its relation to grace and the role of the cogitative power is still unclear[1182]. Given that Fabro laments the forgetfulness of the cogitative power in the Thomistic school, and that grace as participation has become the focus of recent research, one avenue of further research would be a comprehensive analysis of the act of faith, grace, and the role of the cogitative power according to Fabro's interpretation[1183].

[1182] See my «Grace and the Act of Faith: A Fabrian Model», 9/2 (2022), in 10.5840/tiw20229212 [17-1-2025], 89–108.

[1183] For recent research, see M. S. SORONDO, *La gracia como participación de la naturaleza divina según Santo Tomas de Aquino*, Libreria Editrice Vaticana 1979 (soon to be published in English translation, of which I was the editor); M. EITENMILLER, «Grace as Participation

The role of language in perception

In all four chapters of our work, the role of language was discussed. Philosophy of language is a broad field, and, as we have seen, can enter a fruitful dialogue with phenomenology, psychology, and neurobiology. Our analysis has proposed how the Thomistic *experimentum* can account for various aspects of language learning, but there is much more to examine. For instance, we were not able to examine how various aspects of language, such as grammar, symbolic language, and figures of speech are incorporated into use. Furthermore, brief mention was made of how language shapes the way we perceive. Some of these factors must rely on the intellect, yet the application must involve the cogitative power. How that process proceeds would serve as a basis for future study.

Attention and movement in perception

Ecological psychology and sensorimotor enactivism both emphasize the role of attention and movement for perception, and we examined both in our study. Recent literature has focused attention on the Thomistic understanding of attention, but these studies generally focus exclusively on Thomistic texts to the neglect of biological and psychological studies[1184]. Our current interdisciplinary approach was appropriate for the problem of perception, but to consider the problems of attention and movement other sciences can also be incorporated, such as physiology, movement science, and more. Such a task will require an appropriate methodology, but this will allow each discipline to offer insights in an integrated manner.

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according to St. Thomas Aquinas», *New Blackfriars* 98/1078 (2017), in 10.1111/nbfr.12154 [17-1-2025], 689–708; J. A. MITCHELL, «Cornelio Fabro on Supernatural Participations», in N. DREYER – G. TROMBINI – J. C. HENCHEY – J. F. WIPPEL – G. T. DOOLAN – J. A. MITCHELL - et al., *Cornelio Fabro: Essential Thinker*, ed. N. Dreyer, IVEPress, Chillum, MD 2019: 89-115; J. A. MITCHELL, *Aquinas's Theology of Grace: Metaphysics and the New Perspective*, Independently Published, N/A 2024.

[1184] For instance, see G. M. REICHBERG, «Toward a Thomistic Theory of Attention», *tho* 88/4 (2024), in 10.1353/tho.2024.a937597 [16-1-2025], 547–597. Reichberg mentions several examples of secondary literature concerning the same topic, but the literature is very limited.

Integration with the various schools of enactivism

Our fourth chapter developed following the choice to pursue an interdisciplinary project with sensorimotor enactivism, the school that was particularly conducive to our research regarding perception. However, as mentioned in that chapter, there are numerous other schools of enactivism, each with their own insights to offer. We chose sensorimotor, but there remain insights in the autopoietic and radical enactivist schools that could be incorporated; however, further study is needed. It is our hope, however, that our present work gives a framework that is conducive precisely to that.

Likewise, when discussing the various school of enactivism mention was made of the various dimensions of embodiment: the third was intersubjective or communitarian. How the cogitative power plays a role in intersubjective interactions or in the formation of a community remains to be studied[1185].

The perception of art

In his most recent works, Alva Noë's focus seems to have shifted to study perception as concerns art in its various forms, such as painting, dance, music, and more. In our research, we did not address artistic representations or works, but here, too, the problem of perception emerges. Questions such as what constitutes a work of art, and how we engage or perceive the artistic value of objects, remain to be considered from an interdisciplinary perspective incorporating the insights of Aquinas as we did for the question of perception in general.

Final remarks

In *PPi*, Cornelio Fabro mentions, time and again, the importance of the *continuity* and the *emergence* of knowing process. As he writes, "The immanence in

[1185] For one perspective, see J. TOIVANEN, «Estimative Power as a Social Sense», (2020), in 10.1007/978-3-030-33408-6_7 [17-1-2025], 115–136.

the concrete content of perception of the intelligible content, which the mind collects by 'emergence', ensures objective unity, while the unifying continuity and simplicity of consciousness ensures the subjective one"[1186]. Immanence and emergence are the two aspects of perception neatly integrated by Fabro's insistence on the importance of the cogitative power. The perceiver is embedded and embodied in a world that offers so many things to be sensed, but, by virtue of his intellect and cogitative power, man can rise above what is merely presented to him. He can not only obtain knowledge of universals, but also, and very important, give value to things. In this way, through the cogitative power, man's lived life is lived, integrated, and preserved. Without the cogitative power, man would be unable to recall the smell of his grandmother's cooking, to enjoy the voice of a good friend recently returned from a journey, and to experience the life of culture, art, and society.

These insights, latent in the Thomistic texts but brought to the forefront by Fabro, have also been uncovered by other sciences in their own ways and with their own methods. It is our hope that our research will encourage Thomists to engage with other sciences in order to find insights into the mind of Aquinas, and will encourage those in other fields to engage Aquinas, not as simply a philosopher and theologian of the past, but rather as a profoundly human and humanistic thinker, one who can speak to us today precisely because he speaks of unchanging, eternal truths of human nature.

[1186] FABRO, *PP*, 445.

Appendix

Additional information regarding source material

Table 1.A – Books, dissertations, and theses on the *vis cogitativa*

	Author	Title	Citations of Fabro	Other notes
2020	Muszalski, Gustavo Hernán	*Cogitativa y amistad: La naturaleza y el acto de la estimativa del hombre; su función en las diversas formas de amistad humana según santo Tomás de Aquino*	*PPs, FP*, *PPS, KPP, IT, SAKR*	Doctoral dissertation, UPRA
2019	Orcellet, Gustavo Alejandro	*El influjo de las pasiones en la valoración de la cogitativa en la Suma Teológica de Santo Tomás de Aquino*	No	Licentiate thesis from the Universidad Católica de Cuyo
2017	Bulacio, María Veronica	*Educabilidad de la cogitativa a la luz de la antropología tomista*	*KPP, IRPS, PISM, PPs, PPi, FP, LA, PRDH*	Licentiate thesis, Pontifical University Urbaniana; SSVM; directed by Elvio Fontana, IVE
	Mazzone, Luigi	*La natura e la dinamica conoscitiva della ragione particolare: La* vis cogitativa *nell'antropologia di San Tommaso d'Aquino*	*PPi, FP*, *OPS, KPP* cited in references, although in text only two Cfr. References to *PPi*	Revised and reprinted version of his 2006 book[1187]
2014	Lins Brandâo, José Messias	*A potência cogitativa: sua atualidade e aplicaçâo*	*IT, NMP, LAi, PPi, FP*	Printed version of his doctoral thesis in philosophy from the Universidad Pontificia Bolivariana

[1187] Don Mazzone notes that his 2017 book "è la versione rivista e pubblicata del libro sul senso interno della collana dei quaderni dell'istituto di scienze religiose" (personal conversation via email, 26/02/2021).

2012	Gargiulo de Vazquez, María Teresa	*Síntesis intencional de la cogitativa: Un análisis filosófico sobre la riqueza terapéutica de la doctrina de la cogitativa y la afectividad en Tomás de Aquino*	*LAi*, *LAs, PPs*	Printed version of her licentiate thesis from the Universidad Católica de Cuyo
2011	Barker, Fiona R.	*Connaturality and the Cogitative Power: A Thomistic Account of the Influence of Culture on Moral Formation*	No	Doctoral dissertation, Saint Louis University; Committee members Gregory Beabout, William Charron, Jack Marler
2008	Di Martino, Carla	*Ratio particularis. Doctrines des sens internes d'Avicenne à Thomas d'Aquin*	No	Doctoral dissertation, Sciences Religieuses, EPHE Paris / Université de Padoue (Cotutelle de Thèse Franco-Italienne)
2007	Barker, Mark J.	*The Cogitative Power: Objects and Terminology*	*KPP*, *PPs*	Doctoral dissertation, University of St. Thomas, Houston TX; Committee members Christopher Martin, John Deely, Thomas Osborne, Anthony Lisska
2006	Mazzone, Luigi	*Il senso interno*, vis cogitativa ed estimativa nell'antropologia di San Tommaso d'Aquino	*PPi, FP*, *OPS, KPP* cited in references, although in text only two Cfr. References to *PP*	
2005	Jansen, Raymond	*Aquinas On The Cogitative Power And The Generation Of The Sense Appetite*	No	Licentiate thesis, The Catholic University of America; Kevin White director (University of Ottawa)
2002	Barrios, Susana	*Importancia de la cogitativa en el hombre según Santo Tomás de Aquino*	*PPs, PPS, NMP*	Licentiate thesis, Pontifical University Saint Thomas Aquinas; SSVM; Alfred Wilder, OP director
1997	García Jaramillo, Miguel Alejandro	*La doctrina de la cogitativa en Tomás de Aquino y sus fuentes*	*PPs*	Doctoral dissertation, Universidad de Navarra
1995	Mazzone, Luigi	*La vis cogitativa nella antropologia di san Tommaso d'Aquino*	*KPP, OPS, FP, PPi*	Doctoral dissertation, Pontifical University Saint Thomas Aquinas; Director Abelardo Lobato, OP
1960	González, Donato	*La cogitativa según Santo Tomás*	*NMP*	Manila, Ed. Rev. Unitas, 1960. Address given for the opening of the 1960-1961 academic year at The Pontifical and Royal University of Santo Tomas in Manilla, the Philippines. Dominican.

1956	Simard, André	*La nature de la Cogitative d'après Saint Thomas d'Aquin*	*PPS, KPP, IRPS*, *PISM* – notes "Ces études ont été reprises dans" *FP* and *PPi* – *EC*, s.v. *Tommaso d'Aquino*, *Cogitativa*	Doctoral dissertation, Pontifical University Saint Thomas Aquinas
	Flaherty, Daniel Leo	*The Function of the Vis Cogitativa in Preparing the Phantasm for the Act of Abstraction According to St. Thomas Aquinas*	No	Master's thesis from Loyola University Chicago; Jesuit
1952	Dumont, Richard Edward	*An Historical Sketch of the "Cogitative Force" in the Middle Ages: Its Transition through the Orient to the Occident*	*PPS, KPP*	Doctoral dissertation, Ottawa University; director Jacques Croteau, O.M.I.
	Klubertanz, George P.	*The Discursive Power*	*PPS* (although citation is incorrect), *KPP*	A classic; a modified version of his doctoral dissertation; Jesuit
	Muenzer, Joseph A.	*The Role of the Vis Cogitativa in the Prudential Syllogism According to St. Thomas Aquinas*	*KPP*	Master's thesis from Loyola University Chicago – cites Klubertanz's then-unpublished dissertation
1947	Klubertanz, George P.	Vis Cogitativa *according to St. Thomas Aquinas: Sources and Doctrines*	*PPS* (although citation is incorrect), *KPP*	Doctoral dissertation from the University of Toronto: Jesuit; A. C. Pegis and I. Th. Eschmann, O.P., on committee (Maritainian)

Table 1.B – Articles on the *vis cogitativa* in Aquinas

	Author	Title	Published in	Mentions Fabro?	Other notes
2024	Barker, Mark J.	«The Cogitative Power: Aquinas's Development of His Predecessors' Views»	*De Anima* 1/3, 205–212	*KPP*	Note states that the article is the same as his 2020 article, but this includes a reference to Fabro not contained in the previous publication
	Nieto, John Francis	«A Thomistic Rehabilitation of the Passive Intellect»	*The Aquinas Review* 27/1, 29–54	No	
2023	Jalsevac, John	«Mitigating the Magic: The Role of Memory, the Vis Cogitativa, and Experience in Aquinas's Abstractionist Epistemology»	*American Catholic Philosophical Quarterly*, 97/3, 267-292	*PPi*	
	Muszalski, Hernán	«Una reconsideración del objeto formal de la *vis cogitativa*: la aprehensión del individuo *ut existens sub natura communi*»	*Rev. chil. estud. mediev.* 23 (2023), 111-136	*PPS, KPP, PPs*	
2020	Barker, Mark J.	«The Cogitative Power: Aquinas' development of his predecessors' views»	*Dianoetikon,* 1, 1, 165-174	No	
	Muszalski, Hernán	«La aprehensión *collativa* de la estimativa natural en Tomás de Aquino»	*Espíritu*, LXIX n. 160, 291-310	No	
	Peghaire, Julien	«A Forgotten Sense, the Cogitative According to St. Thomas Aquinas»	*Dianoetikon,* 1, 1, 69-110	No	Reprint of his 1943 article
	Sanguineti, Juan José	«The Cogitative in Cornelio Fabro: For a Non-dualist Philosophy of Perception»	*Dianoetikon* 1, 1, 187–204	Mentions *PPi*, uses *PPs* and the unpublished *Libertà e pensiero nell'uomo*	English translation of his 2015 article
2015	Álvarez, Margarita Mauri	«La aprehensión del singular en el proceso del conocimiento moral»	*Espíritu*, LXIV, n. 149, 121-132	No	
	Echavarría, Martín F.	«El conocimiento intelectual del individuo material en la escuela tomista»	*Espíritu*, LXIV, n. 150, 269-302	*PISM*, *PPs*	
	Juanola, Joan D.A.	«Inteligencia animal y *vis aestimativa* en Avicena y Tomás de Aquino»	*Espíritu*, LXIV, n. 150, 341-362	*PPi*	
2014	De Haan, Daniel D.	«Moral Perception and the Function of the *Vis Cogitativa* in Thomas Aquinas's Doctrine of Antecedent and Consequent Passions»	*Documenti e studi sulla tradizione filosofica medievale*, XXV, 289-330.	No	
	De Haan, Daniel D.	«Perception and the *Vis Cogitativa*: A Thomistic Analysis of Aspectual, Actional, and Affectional Percepts»	*American Catholic Philosophical Quarterly*, Vol. 88, No. 3, 397–437	*KPP*	

	Muszalski, Hernán	«El objeto formal de la *Vis Cogitativa* en Santo Tomás de Aquino»	*Sapientia*, Vol. LXX, 75-102.	*PPs*	
	Echavarría, Martín F.	«El conocimiento intelectual del individuo material según Tomás de Aquino»	*Espíritu*, LXIII (2014), 148, 347-379	*PISM*, *PPs*	
	Sanguineti, Juan José	«La cogitativa en Cornelio Fabro. Para una filosofía no dualista de la percepción»	*Studium. Filosofía y Teología*, 34, 437-458	Mentions *PPi*, uses *PPs* and the unpublished *Libertà e pensiero nell'uomo*	2014-2015
2013	Muszalski, Hernán	«Cogitativa y Prudentia Iuris. La cogitativa como sujeto secundario de la prudencia»	*Prudentia Iuris*, 75, 165-179.	Cf. *PPs*	
2012	Barker, Mark J.	«Experience and experimentation: the meaning of *experimentum* in Aquinas»	*The Thomist* 76, 37-71.	*PPi*	
	Basti, Gianfranco	«La teoria "complexa" della cogitativa in Cornelio Fabro Dall'essere al pensiero»	*Aquinas* 55/3 (2012), 311–342.	*PPi,* «Per un tomismo essenziale»*, Introduzione all'ateismo moderno,* «Il trascendentale moderno e il trascendentale tomistico»	
	Tellkamp, Jörg Alejandro	«*Vis estimativa* and *vis cogitativa* in Thomas Aquinas's *Commentary on the Sentences*»	*The Thomist*, 76, 611-40.	No	
	Vázquez, Santiago Hernán	«La noción medieval de cogitativa y sus posibles proyecciones en psicología y psicoterapia»	*Scripta* 5, 1, 2012, 105 – 116	*PPs*	
2007	Lisska, Anthony J.	«A Look at Inner Sense in Aquinas: A Long-Neglected Faculty Psychology»	*Proceedings of the ACPA*, Vol. 80, 1-19	No	Mentions James Gibson and has a lengthy section on the *vis cogitativa*
2005	White, Alfred Leo	«The Picture Theory of the Phantasm»	*Tópicos* 29/1, 131-155	No	
2002	White, Alfred Leo	«Instinct and Custom»	*The Thomist*, 66, 4, 577-605	No	
1999	De Anna, Gabriele	«Cornelio Fabro tra Tomismo e psicologia: una soluzione Neo-Aristotelica al problema gnoseologico»	*Per Cornelio Fabro* (a cura di D. Castellano), 67-89.	*PPi*, *FP*	
	White, Alfred Leo	«Why the Cogitative Power? »	*Annual ACPA Proceedings*, LXXII, 213-227	A reference to *KPP*	
1996	South, James B.	«Intellectual Knowledge of Material Particulars in Thomas Aquinas: An Introduction»	*Philosophy Faculty Research and Publications* 576	No	Marquette University
1990	Mazanedo, Marcos F.	«La cogitativa del hombre y la inteligencia de los animales"	*Angelicum*, 67, 3, 329-363.	Cf. reference to *FP*	Dominican
1985	Lobato, Abelardo	«La cogitativa en la antropologìa de Santo Tomás»	*Journal Philosophique*, 117-138	No	Dominican
	Sanchez Alvarez-	«La inteligencia sentiente y la cogitativa: Zubiri y Santo Tomás»	*Anales de filosofía*, 3,	Mentions *PPi* but uses *PPs*	

	Castellanos, Juan José				
1982	Archideo, Lila Blanca	«La actualidad de la cogitativa tomista»	*Atti dell'VIII Congresso tomístico internazionale*, 79-88.	Cf. reference to *PPi*	
1974	Babolin, Sante	«La cogitativa di San Tommaso»	*Atti del Congresso internazionale Tommaso d'Aquino nel suo settimo centenario*, 7, 363-367.	No	
1970	Rüppel, Ernestus (Ernesto)	«De *vi cogitativa* apud s. Thomam Aquinatem»	*Doctor Communis*, 23, 14-58.	No	Similiar to his earlier article, but not the same; Jesuit
1969	Rüppel, Ernesto	«A *vis cogitativa* de S. Tomas e a sua importância para a crítica do conhecimento»	*Revista Portuguesa de Filosofia*, 25, 2, 127-157.	No	Jesuit
1967	Klubertanz, George P.	S.v. «estimative power»	*The New Catholic Encyclopedia*	No	The *Catholic Encyclopedia* (1904) has no entry for estimative power
	Klubertanz, George P.	S.v. «cogitative power»	*The New Catholic Encyclopedia*	*KPP*	The *Catholic Encyclopedia* (1904) has no entry for cogitative power
1959	da Castronovo, Angelo	«La cogitativa in San Tommaso»	*Doctor Communis*, 99-244	*PPi*, *NMP*; bibliography lists *FP*, *KPP*, *PISM*, *OPNC*	Links cogitative with participation, O.F.M. Cap.
	Suarez, Armando	«Los sentidos internos en los textos y en la temática tomista»	*Salmanticensis*, 401-475	*PPi*, *NMP*	Dominican
1958	Bartolomei, Tommaso M.	«La conoscenza intellettuale del singolare corporeo e la funzione della cogitativa»	*Divus Thomas, 61* (April - Sept. 1958), 157-192	No	O.S.M.
1957	Rodríguez, Victorino	«La cogitativa en los procesos de conocimiento y de afección»	*Estudios Filosóficos*, 245-278	No	Dominican
1953	Flynn, Thomas V.	«The Cogitative Power»	*The Thomist*, 16, 4, 542-563.	*KPP* (cited as Favro)	
1945	Gerhard, William A.	«The Intellectual Virtue of Prudence»	*The Thomist, 8, 4, October 1945, 413-456*	No	
	Gerhard, William A.	«Instinctive Estimation of Practical Values»	*The Thomist*, 8, 2, April 1945, 185-232	No	
1943	Péghaire, Julien	«A Forgotten Sense, the Cogitative according to St. Thomas Aquinas»	*The Modern Schoolman*, 20, 3, 123-40, then 4, 210-29.	No	CSSp
	Péghaire, Julien	«Un sens oublié: la cogitative d'après St. Thomas d'Aquin»	*Revue de l'Univers. d'Ottawa,* 13, section speciale, pp. 65*-91*, and 147*-174*	No	CSSp (Pères du Saint-Esprit - Holy Spirit Father)
1941	Allers, Rudolf	«The *Vis Cogitativa* and Evalution»	*The New Scholasticism*, XV, n. 3, 195-221.	*KPP*	
	Allers, Rudolf	«The Intellectual Cognition of Particulars»	*The Thomist*, 3, 1, 95-163	No	
	Klubertanz, George P.	«The Internal Senses in the Process of Cognition»	*Modern Schoolman*, 18, 27-31	*KPP*	Jesuit.

1936	Wolfson, Harry Austryn	«The Internal Senses in Latin, Arabic, and Hebrew Philosophic Texts»	*Harvard Theological Review*, XXVIII, 2, 69-133.	No	
1933	Hain, Rodolpe	«De vi cogitativa et de instinctu hominis»	*Revue de l'Université d'Ottawa,* Section spéciale, Volume deuxième, 41*-62*	No	O.M.I.
1884	Schlitz, L.	«Die vis aestimativa seu cogitativa des hi. Thomas von Aquin»	*Gorres-Gesellschaft zur Pflege der Wissenschaft* (*Jahresbericht der Section fur Philosophic fur das Jahr 1883*). Koln: J. P. Bachem, 1884.	No	

Table 1.C – A selection of books and articles related to *vis cogitativa*

	Author	Title	Publisher	Mentions Fabro?	Other notes
2024	Caixeta, João Lázaro Ribeiro	«Estética, cognição e música: a mímesis como operação da potência cogitativa»	*Revista Primordium* 9/18, 373-408.	No	Appears in the jul./dez. 2024 number, also as published in 2025.
2023	Undurraga, Sebastián Buzeta and Muszalski, Hernán	«Influencia de la dimensión afectiva en las potencias cognoscitivas para elaboración del justo medio virtuoso en Tomás de Aquino: Una reflexión a partir del conocimiento por connaturalidad afectiva»	*SM* 16/2 (2023), in 10.48162/rev.35.032, 91–124.	No	
2022	Bobier, Christopher A.	«Thomas Aquinas on the Relation Between Cognition and Emotion»	*The Thomist* 86/2, 219-243.	No	
	Toivanen, Juhana (ed.)	*Forms of Representation in the Aristotelian Tradition*	Koninklijke Brill NV, Leiden, The Netherlands 2022.	No	
2019	Băltuță, Elena (ed.)	*Medieval Perceptual Puzzles*	BRILL	No	Of interest are Chapter 9, "Aquinas on Perceiving, Thinking, Understanding, and Cognizing Individuals" by Daniel De Haan, and Chapter 10, "'Accidental Perception' and 'Cogitative Power'" in Thomas Aquinas and John of Jandun" by Paolo Rubini
2016	Lisska, Anthony J.	*Aquinas's Theory of Perception: An Analytic Reconstruction*	Oxford University Press	No	Includes a chapter on the cogitative power, as well as discussion of Aquinas and J. J. Gibson
2015	De Haan, Daniel D.	«Delectatio, gaudium, fruitio. Three Kinds of Pleasure for Three Kinds of Knowledge in Thomas Aquinas»	*Quaestio* 15 (2015), in 10.1484/J.QUAESTIO.5.108628 [16-1-2025], 543–552.	No	
	Juanola Cadena, Joan d'Àvila	*Actualidad psicológica de la teoría de los sentidos internos en Santo Tomás de Aquino*		*FP*, *KPP*, *PPi*, *PPs*	Doctoral dissertation, Universitat Abat Oliba CEU
	Rossi, Pablo Federico	*La fundación teórica del valor del conocimiento en el realismo tomista de Cornelio Fabro: Evolución de la gnoseología fabriana entre las obras* Percezione e		Bibliography lists over 33 books and 150 articles by Fabro	Doctoral dissertation, Pontifical University St. Thomas, I.V.E.

		Pensiero *y* Dall'Essere all'Esistente			
2013	Toivanen, Juhana	*Perception and the Internal Senses*	BRILL	No	The subtitle is: "Peter of John Olivi on the Cognitive Functions of the Sensitive Soul"; Chapter 15 is on the cogitative power
2012	Vidal de Amorim, José	*O Itinerário filosófico de Cornelio Fabro da Fenomenologia da Percepção à Antropologia Metafísica*		Bibliography lists 14 books and 32 articles	Doctoral dissertation, Pontifical Gregorian University
	Barker, Mark J.	«Aquinas on Internal Sensory Intentions: Nature and Classification»	*International Philosophical Quarterly*, 52, 2, 206, 199-226.	*KPP*	
2006	Tellkamp, Jörg Alejandro	«The *sensibilia per accidens* according to Thomas Aquinas»	Published in *Intellect et imagination dans la Philosophie Médiévale*, BREPOLS	No	
2002	Echavarría, Martín F.	«Experimentum, evaluación del particular e inclinación afectiva según santo Tomás»	Actas de la XXVII Semana Tomista: Valores y afectividad: Universidad Católica Argentina, Buenos Aires 23-27 septiembre 2002, Sociedad Tomista Argentina	No	
2000	Black, Deborah L.	«Imagination and Estimation: Arabic Paradigms and Western Transformations»	*Topoi* 19, 59–75.	No	
	Taylor, Richard C.	«*Cogitatio*, *Cogitativus* and *Cogitare*: Remarks on the Cogitative Power in Averroes»	*Rencontres de Philosophie Médiévale*, 111–146	No	
1999	Tellkamp, Jörg Alejandro	*Sinne, Gegenstände und Sensibilia zur Wahrnehmungslehre des Thomas von Aquin*	Brill	No	
1997	Sanguineti, Juan José	«Ermeneutica dell'apprendimento perceptivo»	*Euntes docete*, 50, 195-212.	*PPi*, *FP*	Thoughtful examination of Fabro's *PT* and *PofP*.
1995-1996	Tellkamp, Jörg Alejandro	«La teoría de la percepción de Tomás de Aquino: Fuentes y doctrina»	*Universitas Philosophica*, 25-26, 45-67.	No	
1989	Solère, Jean-Luc	«La notion d'intentionnalité chez Thomas d'Aquin»	*Philosophie*, 24, 13-36.	No	
1982	Cohen, Sheldon M.	«St. Thomas Aquinas on the Immaterial Reception of Sensible Forms»	*The Philosophical Review*, 91, 2, 193-209.	No	
1975	Sacchi, Mario. E.	«La participación de la inteligencia en la experiencia sensible» – 2nda parte	*Sapientia*, XXX, 117, 187-198.	*PPi, PCf, PCi, AMET, KRET*	197 gives references to other Fabrian works regarding Rahner; also references Julio Meinvielle's work.
1973	Sacchi, Mario. E.	«La participación de la inteligencia en la experiencia sensible» – 1era parte	*Sapientia*, XXVIII, 110, 277-292	*PPi, NMP, PCi, PCf, FP*	
1968	Stromberg, James S.	«An Essay on Experimentum (II)»	*Laval théologique et philosophique*, 24, 1, 99-138.	No	

1967	Stromberg, James S.	«An Essay on Experimentum (I)»	*Laval théologique et philosophique*, 23, 1, 76-115.	No	
1958	Stock, Michael	«Sense Consciousness According to St. Thomas»	*The Thomist*, 21, 4, 415-486.	No	Dominican
1956	Mieczyslaw, Albert	«Analysis formationis conceptus entis existentialiter considerati»	*Divus Thomas*, 59, 320-350.	No	Dominican
1952	Klubertanz, George P.	«St. Thomas and the Knowledge of the Singular»	*The New Scholasticism*, 26, 2, 135-166.	No	
1949	Hébert, Thomas	«Notre connaissance intellectuelle du singulier matériel»	*Laval théologique et philosophique*, 5, 1, 33-65.	No	
	Klubertanz, George P.	«*De Potentia*, 5.8: A Note on the Thomist Theory of Sensation»	*Modern Schoolman* 26.4: 323-31.	No	
1933	Moore, Thomas Verner	«The Scholastic Theory of Perception»	*The New Scholasticism*, 7, 3, 224-240.	No	
1932	Hain, Rodolpe	«De vi aestimativa et de instinctu animalium»	*Revue de l'Université d'Ottawa,* Section speciale, Volume Premier, 98*-114*	No	O.M.I.
1930	Simonin, H. D.	«La notion d''intentio' dans l'œuvre de S. Thomas d'Aquin»	*Revue des Sciences philosophiques et théologiques*, 19, 3, 445-463	No	List of texts wherein Aquinas speaks of *intentio*
1924	Gómez Izquerido, Alberto	«Valor cognoscitivo de la 'intentio' en Santo Tomás de Aquino»	*La Ciencia Tomista*, 29, 169-188.	No	
1904	De Vorges, Domet	«L'estimative»	*Revue néo-scolastique*, 11, 44, 433-454	No	

Table 1.D – Books and articles by Fabro

Year	Title		Notes
1983	*Introduzione a san Tommaso*		
1981	*Introducción al problema del hombre. La realidad del alma*		Spanish translation of *L'anima. Introduzione al problema dell'uomo*
1978	*Percepción y pensamiento*		Spanish translation of *Percezione e pensiero*
1974	*La svolta antropologica di Karl Rahner*		
1972	«Antropologia esistenziale e metafisica tomistica»		
1971	«Karl Rahner e l'ermeneutica tomistica (La risoluzione-dissoluzione della metafisica nell'antropologia)»		Published in two parts
1967	*Introducción al tomismo*		Spanish translation of *Breve introduzione al tomismo* (1960); second edition published in 1999
1965	«La verità della fede come sintesti in atto della persona» the concluding chapter of *Dall'essere all'esistente*		"It is precisely within the intentionality of lived life (the sphere of the Thomistic 'cogitative' power) that the moment of natural or immediate faith emerges."
1963	*La nozione metafisica di partecipazione secondo s. Tommaso d'Aquino*		3rd edition
	Partecipazione e causalità		2nd edition
1962	*Percezione e pensiero*		2nd edition
1961	*La fenomenologia della percezione*		2nd edition
	Participation et causalité selon s. Thomas D'Aquin		1st edition
1960	*Breve introduzione al tomismo*		
	Partecipazione e causalità		1st edition
1955	*L'anima. Introduzione al problema dell'uomo*		
1953	*Enciclopedia Cattolica*, v. X	S.v. «psicologia»	
1952	*Enciclopedia Cattolica*, v. IX	S.v. «percezione»	
1950	*La nozione metafisica di partecipazione secondo s. Tommaso d'Aquino*		2nd edition
	Enciclopedia Cattolica, v. V	S.v. «estimativa»	
	Enciclopedia Cattolica, v. V	S.v. «fenomenologia»	
1949	*Enciclopedia Cattolica*, v. III	S.v. «cogitativa»	
1941	*La fenomenologia della percezione*		1st edition
	Percezione e pensiero		1st edition
1939	*La nozione metafisica di partecipazione secondo s. Tommaso d'Aquino*		1st edition
	«Idealismo e Realismo nella percezione sensoriale»		
	«La percezione intelligibile dei singolari materiali»		Published after «Idealismo e Realismo nella percezione sensoriale»
1938	«Il problema della percezione sensoriale»		
	«Knowledge and perception in aristotelic-thomistic psychology»		Published after «Il problema della percezione sensoriale»
1937	«L'origine psicologica della nozione di causa»		

Table 1.E – References found in the secondary literature but that were inaccessible

	Author	Title	Published in	Cited by	Other notes
2007	Petit de Murat, Mario José	«Relaciones de la cogitativa»	*Kairos,* 3, 3	Orecellet, Gustavo Alejandro	Murat, a Dominican, died in 1972; the journal *Kairos* in Argentina is dedicated to "temas sociales"[1188]
2002	De la Cierva Álvarez de Sotomayor, S.	*La aprehensión indirecta del singular según Tomás de Aquino*			Doctoral dissertation, Universidad de Navarra
1988	Corrêa de Oliveira, Plinio[1189]	«O conhecimento por conaturalidade e a cogitativa»	São Paolo.	Lins Brandão, José Messias	Cited as "Palestra" (lecture)
1987	Corrêa de Oliveira, Plinio	«A realidade retamente trabalhada pelo espírito humano»	São Paolo.	Lins Brandão, José Messias	Cited as "Palestra" (lecture)
	Corrêa de Oliveira, Plinio	«O trabalho da cogitativa sob o impulso da graça e da natureza»	São Paolo.	Lins Brandão, José Messias	Cited as "Palestra" (lecture)
1979	Corrêa de Oliveira, Plinio	«O desenvolvimento do proceso de pensamento no homem»	São Paolo.	Lins Brandão, José Messias	Cited as "Palestra" (lecture)
1965	Corrêa de Oliveira, Plinio	«Como o homem toma conhecimento do seu ser»	São Paolo.	Lins Brandão, José Messias	Cited as "Palestra" (lecture)
1955	Dumont, Richard Edward	*A perspective of the cogitative power, relative to the internal senses in the several systems of Alkindi, Alfarabi, Avicenna, Algazel, Averroes, St. Albert and St. Thomas*[1190]			Extract of his earlier doctoral dissertation; at most refers to *PPS* and *KPP*

[1188] A laborious search, conducted by the staff of the Catholic University of America's Mullen Library, was unable to obtain any information at all about the article, not even through their vast network of connected libraries.

[1189] Lins Brandão died in 2013; Fr. Juan Navarro, EP, very graciously searched the house in which Lins Brandão lived for copies of these lectures or even notes of the same, but found nothing (personal conversation via email, 21/03/2021).

[1190] A reference to this extract can be found at the link below, but attempts to obtain a copy were fruitless.
https://www.google.it/books/edition/A_Perspective_of_the_Cogitative_Power_Re/vXLtxQEACAAJ?hl=en&kptab=getbook

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