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The Problem of Mathematical Objects in Merleau-Ponty's Phenomenology

In recent years, several studies have highlighted the potentiality of Maurice Merleau-Ponty's phenomenology to offer a valuable perspective on the ontological status and constitution of ideal objects in mathematics. These contributions can be categorised into three main strands: i) M. Haas, L. Haas,¹ and Samantha Matherne² have argued that Merleau-Ponty's analyses can be fully integrated into debates within the philosophy of mathematics, providing a positive and constructive contribution to the field; ii) Jan Halàk³ has focused on the ways Merleau-Ponty's work sheds light on the role of embodiment in mathematical practices, offering a productive interpretation of the interplay between the body and mathematical reasoning; iii) finally, Pierre Cassou-Noguès⁴

¹ Michael Hass, Lawrence Hass, *Merleau-Ponty and The Origin of Geometry*. In F. Evans (Ed.), *Chiasms: Merleau-Ponty's notion of flesh* (pp. 177–187), SUNY Press, Albany, 2000. Lawrence Hass, in his monograph on Merleau-Ponty, has focused on the theme of mathematical objects. He has proposed a comparison between the conception emerging from Merleau-Ponty's texts and three of the main non-Platonic currents in the philosophy of mathematics: analytic philosophy, mathematical formalism, and intuitionism. Hass has argued – perhaps with overly optimistic conclusions – that Merleau-Ponty's theory represents a sort of “Holy Grail” in this field. This is because, as he puts it: “It offers a non-Platonic theory of mathematics that recognizes the fundamentality of the process of construction (or proof), while also permitting transfinite operations”. Lawrence Hass, *Merleau-Ponty's Philosophy*, Indiana University Press, Bloomington, 2008, pp. 159.

² Samantha Matherne, *Merleau-Ponty on abstract thought in mathematics and natural science*, *European Journal of Philosophy*. 2018;1–18.

³ 1) Jan Halàk, *Mathematics embodied: Merleau-Ponty on geometry and algebra as fields of motor enaction*, in “Synthese” 200, (2022), 34, pp. 1-28; 2) Id. *Embodied higher cognition: insights from Merleau-Ponty's interpretation of motor intentionality*, *Phenomenology and the Cognitive Sciences*, n. 22 (2023), pp. 369–397.

⁴ 1) Pierre Cassou-Noguès, *Le problème des mathématiques dans la philosophie de Merleau-Ponty*, in M. Merleau-Ponty, *Notes de cours sur L'Origine de la géométrie de Husserl* (pp. 369–404), Puf, Paris, 1998 ; 2) Id., *Pour une épistémologie merleau-pontienne en mathématiques*, in “Chiasmi International” (1), Mimesis, Milano, 1999, pp. 287-300.

and Thomas Baldwin,⁵ while recognising the originality and potential of Merleau-Ponty's treatment, have adopted a more cautious approach, identifying certain limitations, such as his insufficient attention to the actual methods and practices of mathematical proofs. Despite these significant contributions, a comprehensive and theoretically consistent study employing Merleau-Ponty's framework to develop a systematic theory of ideal objects remains a *desideratum*.⁶

Unable to fulfil this ambitious goal within the scope of this article, I will focus on some elements that have been overlooked in the cited studies and I will propose a working hypothesis aimed at contributing, partially, to the formulation of a "Merleau-Pontian" theory of idealities. Specifically, while the existing literature has highlighted the productivity of Merleau-Ponty's analyses on this topic, paradoxically, none of these works has addressed why the French phenomenologist – who was not specifically trained in such fields – chose to include sections on mathematical objects in *Phenomenology of Perception*,⁷ *The Prose of the World*,⁸ and certain *Lectures* at the Collège de France.⁹

In other words, it is necessary to clarify *why* mathematical idealities pose a challenge for his phenomenology and *why* a consistent phenomenological theory must provide a rigorous description of these objects that aligns with the treatment of other domains of phenomenality. I contend that the originality – and critical points – of Merleau-Ponty's theoretical approach lie in his attempt to integrate the reflection on mathematical objects into two interrelated perspectives. First, he develops a broader theory of perception aimed at overcoming the opposition between empiricism and idealism. Second, he proposes a theory of expression designed to address certain unresolved issues in *Phenomenology of Perception*. This dual focus represents both a strength and a weakness. The path I suggest at the end of the article involves integrating the two main phenomenological approaches that dominate this field: i) the reduction of idealities to

⁵ Thomas Baldwin, *Language as the embodiment of geometry*. In R. Jensen & D. Moran (Eds.), *The phenomenology of embodied subjectivity*, Springer, Cham, 2013, pp. 305-327.

⁶ Surprisingly, Kirk Besmer's monograph, *Merleau-Ponty's Phenomenology: The Problem of Ideal Objects* (Continuum, New York, 2007), barely addresses mathematical idealities at all.

⁷ Maurice Merleau-Ponty, *Phénoménologie de la perception*, Gallimard, Paris; trans. D. A. Landes, *Phenomenology of Perception*, Routledge, London-New York, 2012.

⁸ Id. *La Prose du monde*, Gallimard, Paris, 1969; trans. J. O'Neill, *The Prose of the World*, Northwestern University Press, Evanston, 1973.

⁹ 1) Id., *L'institution, la passivité. Notes de cours au Collège de France (1954-1955)*, Belin Éditeur, Paris, 2003; trans. L. Lawlor and H. Massey, *Institution and Passivity*, Northwestern University Press, Evanston, 2010.

² Id., *Notes de cours sur l'Origine de la géométrie chez Husserl*, Puf, Paris, 1998; trans. L. Lawlor and B. Bergo, *Husserl at the Limit of Phenomenology*, Northwestern University Press, Evanston, 2002.

a pre-theoretical or perceptual ground (Husserl and Merleau-Ponty); ii) the placement of phenomenological analyses exclusively within an intra-theoretical dimension (J.-T. Desanti and D. Pradelle).

1. Phenomenology and the Enigmas of ‘Pure Thought’

The question over the definition of the ontological status of mathematical objects is as old as philosophy itself. Philosophy has always looked at perfection and indubitability characterising mathematical demonstrative procedures with a sense of wonder and admiration. At times – particularly from the modern philosophical period onward – it has even sought to emulate these argumentative methods. Husserl’s phenomenology, through the theory of categorical intuition or perception [*kategoriale Anschauung*],¹⁰ has sought to describe the intentional modes and lived experiences [*Erlebnisse*] of evidence [*Evidenz*] in which ideal objects appear. He has attempted to chart a third path between the dead ends of psychologism and Platonic or theological realism.¹¹

The argumentative path of Phenomenology of Perception describes mathematical objects while attempting to situate between two opposing poles of classical philosophical reflection: *empiristic realism* and *intellectualist idealism*. Both approaches share the dogmatic presumption of a reality-in-itself: either in things (empiricism) or in the mind (idealism). Regarding mathematical idealities, Merleau-Ponty tries to refute the most dangerous position in this field, idealism, which bases its strength on the supposed purity and transparency of the lived experience connected to these ideal entities. On the other hand, empiricism, which in the case of idealities reduces itself to psychologism, falls into a problematic position already identified by Husserl in *Prolegomena to Pure Logic*.¹² This

¹⁰ Edmund Husserl, *Logische Untersuchungen. Zweiter Teil: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis. In zwei Bänden* [Hua XIX], ed. by U. Panzer, Nijhoff, Den Haag, 1985; trans. J. N. Findlay, *Logical Investigations*, London-New York, Routledge, 2001, § 40 ff. Husserl will seek to avoid Platonism by tracing categorical forms back to a “logic of sensibility”. Cf. Lorenzo Marannino, *La ‘logica del sensibile’ nella fenomenologia di Husserl. La funzione del precategoriale dalle Ricerche logiche a Esperienza e giudizio*, in “Archivio di filosofia” XCII, 1/2024, pp. 201-216.

¹¹ Regarding the theological version of realism, I refer to the Scholastic-Thomist interpretation. On this topic, see the excellent summary provided by Dominique Pradelle in the introductory section of his latest notable volume of phenomenological studies on mathematical objects. Cf. Dominique Pradelle, *Être et genèse des idéautés. Un ciel sans éternité*, Puf, Paris, 2023, pp. 18-28.

¹² Edmund Husserl, *Logische Untersuchungen. Erster Teil: Prolegomena zur reinen Logik. Text der 1. und der 2. Auflage* [Hua XVIII]; Eds. E. Holenstein, Nijhoff, Den Haag, 1975; trans. J. N. Findlay, *Logical Investigations*, London- New York, Routledge, 2001.

position does not distinguish between mental acts and their ‘intentional content’ and cannot explain the validity of logical and mathematical laws. Consequently, it leads inevitably to an unacceptable relativism.

The topic of mathematical idealities is addressed in the third part of *Phenomenology of Perception* (*Being-for-Itself* and *Being-in-the-World*), specifically in the chapter on the *Cogito*. This section examines the intentional dynamics of what we define as ‘thought’, that is, the domain in which the *presence* of something in lived experience (*thinking-of*) appears to coincide with the *self-presence* of thought itself in its “self-possession”.¹³ When conceived in this way, the *Cogito* can be interpreted in two ways: i) in an empiricist manner: “To reduce experience to a sum of psychological events for which the I is merely a common name or the hypothetical cause”¹⁴ or ii) in an idealist manner: “To recognize, beneath events, a field and a system of thoughts that would not be subjected to time, nor to any limitation.”¹⁵

In other words, while the empiricist and psychologicist conception disperses experience into a collection of isolated facts devoid of unity, and thus of *meaning*, intellectualist idealism equates the *being* of the subject with its *thought*, leading directly to the “affirmation of the non-temporality of the mind and the admission of an eternal consciousness”.¹⁶ This makes subjectivity a kind of “universal constituent”¹⁷ that generates all lived experience and meaning entirely on its own, without being open to receptivity or affection. If the *Cogito* is thought in an idealist manner, an unsustainable conclusion occurs: “It must then be said, with no qualification, that my mind is God”.¹⁸ According to Merleau-Ponty, it is necessary to find “a path between eternity and the fragmented time of empiricism”.¹⁹

For Merleau-Ponty, it is essential to reveal that the subject’s supposed full self-presence, as well as the ideal objects it produces, are ultimately an illusion. He undertakes this task by examining various levels of conscious life: from the simplest, involving a relationship to external transcendence, such as sensory perception; to acts of will and feeling, which

¹³ M. Merleau-Ponty, *Phenomenology of Perception*, cit. p. 392. It should be noted that Merleau-Ponty draws extensively on Pierre Lachière-Rey’s works in his description of the *Cogito*, particularly *L’idéalisme kantien* (Alcan, Paris, 1932) and *Le Moi, le Monde et Dieu* (Boivin, Paris, 1938).

¹⁴ M. Merleau-Ponty, *Phenomenology of Perception*, cit. p. 390.

¹⁵ Ibid.

¹⁶ Ibid.

¹⁷ Ivi, p. 391.

¹⁸ M. Merleau-Ponty, *Phenomenology of Perception* (2), trans. C. Smith, London, Routledge, 1962, p. 372. This citation is inexplicably absent in Landes’s more recent translation (2001).

¹⁹ M. Merleau-Ponty, *Phenomenology of Perception*, cit. p. 392.

pertain to the subject's interiority. In each case, he shows that the subject is never fully transparent to itself and is always affected by elements of passivity, making a complete synthesis of the intuited object impossible: the movement of existence can never be fully captured by the thought that reflects upon it.

Merleau-Ponty characterises the idea of self-transparency of consciousness present in these acts with the term "retrospective illusion", which occurs when "everything that I will later learn about myself is introduced into me as an explicit object".²⁰ It is essential to keep the notion of retrospective illusion in mind, as it becomes one of the concepts Merleau-Ponty uses in describing demonstrative procedures. Mathematical objects – as objects of 'pure thought' – are introduced by Merleau-Ponty through the following self-objection:

It certainly seems necessary then to concede an absolute coinciding of myself with myself, if not in the case of desire or emotion, then at least in the acts of 'pure thought'. If this were the case, then everything we have said above would be thrown into question, and, far from thought appearing as a manner of existing, we would actually belong solely to the domain of thought.²¹

Merleau-Ponty argues that acts of will and feeling always involve the possibility of illusion. We can deceive ourselves about the authenticity of what we desire or feel, and we may later discover that what we believed to be love was, in fact, a fictitious projection and therefore not true love. In the case of 'pure thought' however, error seems impossible. On the contrary, there appears to be a complete coincidence between my act of intending the object and the object itself. This seems particularly evident in mathematical thought, where the properties of objects and the steps of demonstrations appear entirely transparent, and the synthesis underpinning them seems fully intelligible and reproducible in the same way by any subject.²² Merleau-Ponty must therefore grapple with this final stage of thought to avoid conceding to idealism and falling into its problematic

²⁰ Ibid., p. 400.

²¹ Ibid., p. 403.

²² Husserl's phenomenology has attributed two fundamental features to ideal objectivities: omnitemporality and irreality. By 'omnitemporality [*Allzeitlichkeit*]' Husserl means the capacity of ideal objectivities to be intended "and so on" (*immer wieder*) in the same way by any possible subject, without undergoing modification over time. Husserl favored the term "omnitemporality" over the more traditional "timelessness [*Zeitlosigkeit*]" to highlight the connection between ideality and the temporal dimension of lived experience. Cf. Edmund Husserl, *Erfahrung und Urteil, Untersuchungen zur Genealogie der Logik. Ausgearbeitet und Herausgegeben von Ludwig Landgrebe*, ed. by L. Landgrebe, Prague, Academia Verlagbuchhandlung, 1939; trans. J. Churchill and K. Ameriks, *Experience and Judgement*, Routledge, London, 1973, § 64.

conclusions. He must demonstrate that even in the realm of mathematical idealities, there is no identity of thought with itself and that their necessity arises from an act of 'expression' which, as such, introduces a constitutive *distance* between thought and the object expressed.

Amidst the growing specialisation of knowledge and the accompanying philosophical and epistemological analyses, Merleau-Ponty's phenomenological project seeks to offer – fully aware of the inherent risk – a comprehensive theory of the constitution of scientific objectivities in their various forms. This theory begins with perception and examines the different levels of meaning production, such as gesture and language, culminating in the highest products of thought, such as mathematical idealities. This line of inquiry was further developed after *Phenomenology of Perception* and is evident in the project Merleau-Ponty submitted in 1952 to Martial Gueroult for his candidacy at the Collège de France. In this proposal, Merleau-Ponty indicated that he was working on a project entitled *The Origin of Truth*. This work was intended to be a "theory of truth" aimed at developing a genealogy of the constitution of the truth. The theory "was to be constructed around a new idea of expression which was yet to be completed, of an analysis of gestures or the mimetic uses of the body and of all forms of language, to the most sublimated language of mathematics".²³ A theory of truth cannot overlook the analysis of mathematical objects, given their status as a domain of truths in their own right and as the foundation of modern and contemporary physics.

2. Geometric Ideality as *Gestalt*

From the outset, it must be acknowledged that Merleau-Ponty's analyses are unlikely to find fertile ground among professional mathematicians. This is for a very straightforward reason, which does not imply an error on their part. Mathematicians and philosophers of mathematics operate within a specific field of knowledge, using concepts and gestures intrinsic to mathematical discourse.²⁴ However, what is at stake here is

²³ Claude Lefort, *Preface to The Prose of the World*, cit. pp. xii-xiii. The most extensive text in which Merleau-Ponty presents his project on *The Origin of Truth* can be found in M. Merleau-Ponty, *Parcours Deux: 1951-1961*, Verdier, Paris, 2000, pp. 36-48.

²⁴ This is the approach adopted by several phenomenologists who have engaged with such issues, advocating the necessity of a distinctly regional phenomenology. Such a phenomenology situates itself directly within the concepts and language of a specific theoretical field, without seeking its foundation in more 'original' extra-theoretical dynamics. Among the leading proponents of this perspective are Jean-Toussaint Desanti (*Les idéautés mathématiques*, Seuil, Paris, 1968) and Dominique Pradelle (*Intuition et idéautés*.

the rigorous description of all the presuppositions and phenomena taken for *obvious* within work conducted on a given field of ideality. These elements must be described in their transcendental, constitutive, and inescapable value. Among these, the body as a motor subject is very important throughout *Phenomenology of Perception*.

This approach has the merit of opening a given field of knowledge to a broader theory of perception, expression, and truth, rather than confining it within itself. However, its weakness – already noted by some studies²⁵ – lies in Merleau-Ponty's occasional lack of competence in the foundations of mathematics and his consequent insufficient attention to the formal, and thus substantive details of demonstrative procedures. A phenomenological theory of idealities seeking to adopt a Merleau-Pontian framework must undoubtedly be complemented with more specific theoretical tools.²⁶

In *Phenomenology of Perception*, Merleau-Ponty addresses the description of the ideal object of geometry as a model of an act of 'pure thought' (while in *The Prose of the World*, he will turn to algebra). He does so by examining a specific example of a basic theorem's proof: the sum of the interior angles of a triangle, which, as is well known – at least in Euclidean geometry – is equal to the sum of two right angles.

The proof proceeds through a straightforward construction: drawing a line through one of the triangle's vertices and parallel to the opposite side. By applying the theorem of parallel lines cut by a transversal, it becomes possible to demonstrate that the angles adjacent to the vertex where the line was drawn are congruent in pairs with the other two angles of the triangle (since they are alternate interior angles). Therefore, as these three angles lie on the same straight line, their sum forms a straight angle. Consequently, the sum of the interior angles of the triangle is also congruent to a straight angle and thus equal to two right angles.

Merleau-Ponty asserts that the certainty of a demonstration requires a subjective act capable of transcending the "order of phenomena" and

Phénoménologie des objets mathématiques, Puf, Paris, 2020). In my view, there need not be an inherent contradiction between these two phenomenological approaches. Research conducted from "within" a particular practice is essential for providing a compelling and concrete account of how the modes of intuition and constitution of objects occur. Conversely, inquiries that interconnect a specific disciplinary endeavour with its presuppositions can transcend the abstraction characterising any particular regional ontology or theoretical domain, offering a more comprehensive description.

²⁵ Baldwin argued that the issue with Merleau-Ponty's approach lies in his insufficient appreciation of "formal proofs," which, according to Baldwin, would be required by the same Merleau-Ponty's conception of expression. See T. Baldwin, *op. cit.*, p. 325.

²⁶ For example, the outline of a 'Merleau-Pontian epistemology of mathematics' proposed by Pierre Cassou-Noguès (1998, 1999) attempts to integrate Merleau-Ponty's analyses with those of Jean Cavaillès.

the “temporal dispersion of phases of thought”.²⁷ This act allows access to a demonstrative truth that seems independent of these elements, creating the *illusion* of fully intuiting the ideal object as such. While the perceptual figure provides a distance and transcendence that cannot be fully explained by the tools of intellectualistic idealism, the same figure, once idealised, seems to exceed the order of the phenomenal and contingent. It reaches the “order of the *eidos* or of the being”,²⁸ where relationships, as demonstrable entities, are intuitively grasped in their fullness. The regularities common to every concrete or imagined figure seem independent of these figures and, indeed, appear to determine their very structure.

This “act” of idealisation requires several essential elements to perform the transition from the phenomenal to the ideal. It is necessary, quite simply, to perceive the triangle and its concrete physiognomy, to be able to physically (or imaginatively) draw the lines of the construction, to “still-holding-in-grasp” [*Im-Griff-behalten*] a series of pieces of information simultaneously in the retentional chain, so that they can be compared with the final construction. Finally, the process involves formalising everything by detaching the proof from the concrete process that generated it, thereby making it fully valid for all time and for every possible triangle.

To present itself as such (to be constituted) the geometric object requires, as a necessary but not sufficient condition, that the subject who intends it is a motor subject endowed with a body, which thereby assumes a constitutive, transcendental role.²⁹ This does not mean reducing the structures of the object to the noetic or psychological act of intention or to the physical structure of the subject, which would fall back into the confines of empiricism and thus psychologism. Instead, it affirms that the *noematic correlates themselves*, by their own structure, can only be intended within a motor spatiality: “The construction makes explicit the possibilities of the triangle being examined, not according to its defini-

²⁷ M. Merleau-Ponty, *Phenomenology of Perception*, cit. p. 404.

²⁸ Ibid.

²⁹ Jan Halák has particularly emphasised the role of corporeality: “Bodily motricity is involved even in the abstract domain of symbol-based mathematical cognition, as a means of transforming mathematical gestalts and changing our relationship to the cultural symbolic environment consequently. [...] In the abstract domain, motor articulation of phenomenal structures is neither entirely excluded nor reverted to simulating presumably original perceptual experiences; rather, it is ‘sublimated’ into ‘symbolic gesticulation’”. J. Halák, *Mathematics embodied: Merleau-Ponty on geometry and algebra as fields of motor enaction*, cit. p. 28.

tion and as an idea, but according to its configuration and as the pole toward which my movements are directed”.³⁰

For Merleau-Ponty, the notion most appropriate for describing an ideal object is not that of ‘essence’ or ‘pure ideality, but rather *Gestalt*.³¹ This term aims to evoke the idea of a ‘form’, a ‘structure’, or a ‘configuration’ open to various demonstrative possibilities, although constrained by laws inherent to the structure itself. If we could intuit mathematical ideality as a ‘pure essence’ fully transparent, we would not only fall back into the problems of Platonism and intellectualistic idealism discussed in the previous paragraph, but we would also fail to grasp the functioning of the demonstrative dynamics themselves. These dynamics manifest as continuous reconfigurations of preceding forms, which therefore are not fixed or complete but fundamentally open structures. This does not imply total freedom in mathematical work, as Merleau-Ponty is fully aware. The possibilities realised in demonstrations are inscribed within the *Gestalt* of ideality itself.

The construction also relies on spatial concepts such as “‘on’, ‘by’, ‘vertex’, and ‘extend’”,³² which, to *signify*, reference a concrete spatiality from which a series of idealisations can be performed. However, the motor operation of construction (or imaginative operation, equally grounded in the *pure possibility of movement*) can only take place starting from the perceptual structure of the figure itself and its capacity to lend itself to possible operations. These operations are indispensable in the initial process, though retrospectively they are irrelevant to the validity of the formalised proof.

All the described operations and concepts are necessary for the emergence of geometric truth, even – or especially – when the proof is ultimately formalised. In this regard, Merleau-Ponty argues that the necessity of the demonstration is not analytic, stating: “There is no definition of the triangle that contains in advance both the properties that will be demonstrated through what follows and the intermediaries that will be passed through in order to arrive at this demonstration”.³³ The properties discovered through concrete work on the object paradoxically contribute to

³⁰ M. Merleau-Ponty, *Phenomenology of Perception*, cit. p. 405.

³¹ It would be too extensive to recount all the work undertaken by Merleau-Ponty in *Phenomenology of Perception* (as well as in *The Structure of Behaviour*) in his engagement with Gestalt psychology, and thus on the notion of Gestalt. This concept is, as is well known, the key element through which Merleau-Ponty modifies and integrates Husserlian phenomenology. Cf. Luca Taddio, *Merleau-Ponty. L'apparire del senso*, Feltrinelli, Milano, 2024, pp. 8-9.

³² M. Merleau-Ponty, *Phenomenology of Perception*, cit. p. 405.

³³ *Ibid.*, p. 404. Merleau-Ponty follows Kant regarding the synthetic character of mathematics.

constituting the object itself, which becomes an open structure clearly definable (the triangle has a precise definition) yet open to further redefinitions (which are not contained a priori within the definition).

Even when the proof and its components are formalised, the specific determinations of geometric discourse cannot be stripped of their intuitive origin and reference to fundamentally spatial elements, without which they would be incomprehensible. For Merleau-Ponty, formalisation is always a “retrospective”³⁴ act and, as such, can never be entirely complete. It inherently contains the motor operations performed on a particular object and the intuitive components that ‘fill’ [erfüllen] what is formalised. Therefore, there is no analytic deduction of properties from an ideal essence. Instead, the process involves a *synthetic operation* of demonstration that uncovers elements inscribed as possibilities within the *Gestalt* of the geometric object. These elements proliferate through theoretical stratifications. The ideal object thus reveals itself as a “field of possible movements”,³⁵ a pole of concrete transformations without which its properties could never emerge.

3. Mathematics as a Form of ‘Expression’

Particularly in *Phenomenology of Perception*, Merleau-Ponty’s analysis rests on the idea that no formalisation or logical definition, however refined, can “equal the fecundity of the vision of the shape”.³⁶ In other words, he argues that intuitive perception or imagination – such as that of a sphere – is perfectly comprehensible on its own, without recourse to additional constructs. By contrast, its formalisation, whether as a definition or as an equation expressed through Cartesian coordinates, while formally more precise than any physical sphere, drawing, or possible imagination, does not fully present the sphere or make it comprehensible as such unless it is brought back to a perceptual or imaginative dimension. In short, it must return to the intuitive ground from which it originated: “Formal thought is sustained by intuitive thought”.³⁷

I believe that two clear objections arise against this argument: the first concerns how to bring to intuitive givenness mathematical objects that, by their very nature, cannot ultimately be intuitive, such as infinite quantities, without which neither arithmetic nor geometry could be

³⁴ Ibid., p. 405.

³⁵ Ibid., p. 406.

³⁶ Ibid., p. 405.

³⁷ Ibid.

conceived.³⁸ However, Merleau-Ponty's approach does not aim to reduce every formalisation to a supposedly pure or definitive intuitiveness. On the contrary, he seeks to demonstrate that, while intuitive thought may be more 'original', it is equally never self-contained or fully capable of synthesising its objects.

It matters little that formal operations distance themselves from an assumed perceptual purity; the goal is instead to show that neither purity nor transparency ever truly exists, not even after formalisation. Indeed, formalisation generates the "retrospective illusion" of having uncovered a realm of absolute truths. For Merleau-Ponty, formalisation attempts to transcend the distance present in perception but can never fully purify its language, whether in mathematics or any other domain. A '*characteristica universalis*' (Leibniz) or a 'pure logical grammar' or 'eidetic language' (Husserl) are impossible for Merleau-Ponty,³⁹ as even these refer back to an originally instituting dimension of expressive acts. This dimension precedes and is then obscured by formalisation, which merely suggests that the sign perfectly corresponds to the meaning: "The algorithm, the project of a universal language, is a revolt against language in its existing state and a refusal to depend upon the confusions of everyday language."⁴⁰

However, this does not mean formalisation and idealisation should be regarded negatively. This interpretation would betray a profound naivety in Merleau-Ponty's analysis and render it entirely useless. Instead, it underscores that the presuppositions of formalisation prevent us from conceiving of idealities in perfect transparency. The thought remains *distanced* even from objects that exist solely within thought itself, and idealism cannot assert its strength, not even in the domain of pure idealities.

The second objection, closely tied to the first, concerns the capacity of symbolic processes of formalisation to expand the possibilities for creating meaning and presenting objects or relationships that are not intuitively given. Even Husserl, in *Philosophy of Arithmetic*, acknowledged that "symbolic concept formation" – such as those of infinite sets – involves a "strong Idealisation of our powers of representation [*starke Idealisierung unseres Vorstellungsvermögens*]."⁴¹ The process of idealisation and formalisation enables the execution of higher-order operations and the demonstration of properties that could not emerge at a previous level.

³⁸ The topic of the intuitive givenness of infinity is undoubtedly complex and cannot be adequately addressed within the limited scope of this discussion.

³⁹ M. Merleau-Ponty, *The Prose of the World*, cit. p. 16.

⁴⁰ *Ibid.*, p. 5.

⁴¹ E. Husserl, *Philosophie der Arithmetik, Psychologische und logische Untersuchungen* [Hua XII], ed. by L. Eley, M. Nijhof, Den Haag, 1970, p. 223; trans. D. Willard, Kluwer Academic Publisher, Dordrecht-London-Boston, 2003, p. 236.

Thus, it is possible for certain expressive practices – since symbolisation itself is a form of expression – to serve as foundations for further layers of expression, enabling the *creation of new meanings*.

The critique would be well-founded within the framework of *Phenomenology of Perception* but Merleau-Ponty later acknowledged the importance of symbolic dynamics, placing mathematical elaboration within a broader theory of expression, outlined in *The Prose of the World* and his *Lectures*. At this stage, Merleau-Ponty does not sever ties with the theoretical advances of *Phenomenology of Perception*. He maintains that “the very notion of essence is formed in contact with an imitation of the perceived object [...]: pure being prior to the subject”.⁴² However, now he understands that expressive dynamics themselves are the places where the articulation of meaning is simultaneously a “development of meaning [*devenir du sens*]” and a “becoming-meaning [*devenir sens*]”.⁴³ Merleau-Ponty thus clarifies that his project is not at all to “reduce mathematical evidence to perceptual evidence”, nor to deny “the originality of the order of knowledge vis-à-vis the perceptual order”; but rather to “to loose the intentional web which ties them to one another, to rediscover the paths of the sublimation which preserves and transforms the perceived world into the spoken world.”⁴⁴

The task is to examine the levels at which expressive systems generate new meaning by restructuring the system they belong to and giving rise to new systems, languages, or notations. They retain the *instituting* dimension (*primitive expression/instituting word*) intrinsic to linguistic practice, yet coherent because they are embedded within precise and definable relationships between signs (*algorithmic expression*). Mathematics represents the highest level of this process of expressive *sublimation*, as its language has progressively freed itself from references to the concreteness of the world.

Once we understand the value of formalisation and the intra-theoretical restructuring of a discipline, the problem is not “to show that mathematical thought rests upon the sensible but that it is creative” and that “creativity could also be shown for a formalized mathematics”.⁴⁵ Therefore, mathematical truth must be free from “the perceptual analogy which makes ‘something’ (*etwas überhaupt*) of the mathematical expression.”⁴⁶ Mathematical truth is: “Nothing but the ensemble of relations established

⁴² M. Merleau-Ponty, *The Prose of the World*, cit. p. 123.

⁴³ Ibid., p. 127. The expression “becoming-meaning” is our translation, because the English translation incorrectly does not distinguish between “*devenir du sens*” and “*devenir sens*”, translating both with “development of meaning”.

⁴⁴ Ibid., pp. 123-124.

⁴⁵ Ibid., p. 126.

⁴⁶ Ibid., p. 125.

within it *plus an open horizon of relations that can be constructed*. This horizon is not the mode of presentation of a self-contained mathematical entity; at every moment, there is really nothing in heaven or on earth but the known properties of the integer.”⁴⁷ For Merleau-Ponty, even in *The Prose of the World*, the mathematical object is likened to a *Gestalt*, always open to redefinitions. Mathematical ideality is a continuous intra-theoretical construction that has emerged throughout history through a series of expressive stratifications, which undoubtedly began with perception but are not reducible to it.⁴⁸

Conclusion: Which Path for a Phenomenology of Idealities?

The notion of a continuous redefinition of ideal objects and the rejection of the possibility of their complete intuition is also supported by scholars such as Dominique Pradelle. Following the phenomenological framework of Jean-Toussaint Desanti, he has focused on describing the modes of the constitution of idealities from within the theoretical domain of mathematics itself. Pradelle has argued against any return to a pre-mathematical ground in determining the constitution of idealities and, instead, emphasises the need to examine the intra-theoretical stratifications that always occur within a “particular *mathematical situation*”.⁴⁹ “The modality of *categorical* constitution – Pradelle writes – is the transition from one theoretical situation to another”.⁵⁰ He portrays mathematical idealities as “construction sites [*chantier*] of evolving theorisation”,⁵¹ where demonstrative and formal stratifications continuously redefine the objects they address, stripping them of their static and fixed nature. For Pradelle, the semantic level of the institution of mathematical objects – which entails a creative, non-analytical component – is *intertwined* (*entrelacé*) with the demonstrative dimension, which compels the subject to follow specific pathways. This interplay ensures the ontological autonomy and full objectivity of ideal objects.

I believe that Merleau-Ponty’s position, which describes mathematical ideality as a *Gestalt*, finds significant points of convergence with the appro-

⁴⁷ Ibid.

⁴⁸ “Instead of saying that we establish certain *properties* of mathematical *entities*, we would be more exact if we said that we establish the possibility of the principle of enriching and making more precise the relations that served to define our object, of pursuing the construction of coherent mathematical wholes which our definitions merely outlined”. *Ivi*, p. 122.

⁴⁹ D. Pradelle, *Être et genèse des idéalités*, cit. p. 441 (our translation).

⁵⁰ Ibid., p. 312.

⁵¹ Ibid., p. 245.

ach of phenomenologists like Pradelle. Working from an intra-theoretical perspective, Pradelle emphasises the evolving nature of ideal objects as structures in becoming and the impossibility of pure categorical intuition.⁵² A promising working hypothesis – only outlined here and requiring further exploration through concrete research – might be to pursue a third path, a synthesis of the two approaches. This would avoid both the total reduction of idealities to perceptual dynamics, as Husserl in *Experience and Judgment* and Merleau-Ponty in *Phenomenology of Perception* propose, and the exclusion of any interaction between intra-theoretical and extra-theoretical dynamics. After all, as Merleau-Ponty's later reflections demonstrate, mathematical discourse is one among many expressive forms through which meaning – and therefore the world itself – is constituted.

Bibliography

- Baldwin, Thomas. *Language as the embodiment of geometry*. In R. Jensen & D. Moran (Eds.), *The phenomenology of embodied subjectivity*, Springer, Cham, 2013, pp. 305-327.
- Besmer, Kirk. *Merleau-Ponty's Phenomenology: The Problem of Ideal Objects* (Continuum, New York, 2007).
- Cassou-Noguès, Pierre. *Le problème des mathématiques dans la philosophie de Merleau-Ponty*, in M. Merleau-Ponty, *Notes de cours sur L'Origine de la géométrie de Husserl* (pp. 369–404), Puf, Paris, 1998.
- Cassou-Noguès, Pierre. *Pour une épistémologique merleau-pontienne en mathématiques*, in “Chiasmi International” (1), Mimesis, Milano, 1999, pp. 287-300.
- Desanti, Jean-Toussaint. *Les idéalités mathématiques*, Seuil, Paris, 1968.
- Halàk, Jan. *Mathematics embodied: Merleau-Ponty on geometry and algebra as fields of motor enaction*, in “Synthese” 200, (2022), 34, pp. 1-28.
- Halàk, Jan. *Embodied higher cognition: insights from Merleau-Ponty's interpretation of motor intentionality*, *Phenomenology and the Cognitive Sciences*, n. 22 (2023), pp. 369–397.
- Hass, Michael and Hass, Lawrence. *Merleau-Ponty and The Origin of Geometry*. In F. Evans (Ed.), *Chiasms: Merleau-Ponty's notion of flesh* (pp. 177–187), SUNY Press, Albany, 2000.
- Hass, Lawrence. *Merleau-Ponty's Philosophy*, Indiana University Press, Bloomington, 2008.
- Husserl, Edmund. *Philosophie der Arithmetik, Psychologische und logische Untersuchungen* [Hua XII], Eds. L. Eley, M. Nijhof, Den Haag, 1970; trans. D. Willard, Kluwer Academic Publisher, Dordrecht-London-Boston, 2003.

⁵² Pradelle has proposed replacing the notion of categorical intuition with that of “categorical fulfilment [*remplissement catégorial*]”. D. Pradelle, *Intuition et idéalités*, cit. p. 469.

- Husserl, Edmund. *Logische Untersuchungen. Erster Teil: Prolegomena zur reinen Logik. Text der 1. und der 2. Auflage* [Hua XVIII]; Eds. E. Holenstein, Nijhoff, Den Haag, 1975; trans. J. N. Findlay, *Logical Investigations*, London-New York, Routledge, 2001.
- Husserl, Edmund. *Logische Untersuchungen. Zweiter Teil: Untersuchungen zur Phänomenologie und Theorie der Erkenntnis. In zwei Bänden* [Hua XIX], ed. by U. Panzer, Nijhoff, Den Haag, 1985; trans. J. N. Findlay, *Logical Investigations*, London-New York, Routledge, 2001.
- Husserl, Edmund. *Erfahrung und Urteil, Untersuchungen zur Genealogie der Logik*. Ausgearbeitet und Herausgegeben von Ludwig Landgrebe; Eds. L. Landgrebe, Prague, Academia Verlagsbuchhandlung, 1939; trans. J. Churchill and K. Ameriks, *Experience and Judgement*, Routledge, London, 1973.
- Lachière-Rey', Pierre. *L'idéalisme kantien*, Alcan, Paris, 1932.
- Lachière-Rey', Pierre. *Le Moi, le Monde et Dieu*, Boivin, Paris, 1938.
- Marannino, Lorenzo. *La 'logica del sensibile' nella fenomenologia di Husserl. La funzione del precategoriale dalle Ricerche logiche a Esperienza e giudizio*, in "Archivio di filosofia" XCII, 1/2024, pp. 201-216.
- Merleau-Ponty, Maurice. *Phenomenologie de la perception*, Gallimard, Paris; trans. D. A. Landes, *Phenomenology of Perception*, Routledge, London-New York, 2012.
- Merleau-Ponty, Maurice. *La Prose du monde*, Gallimard, Paris, 1969; trans. J. O'Neill, *The Prose of the World*, Northwestern University Press, Evanston, 1973.
- Merleau-Ponty, Maurice. *L'institution, la passivité. Notes de cours au Collège de France (1954-1955)*, Belin Éditeur, Paris, 2003; trans. L. Lawlor and H. Massey, *Institution and Passivity*, Northwestern University Press, Evanston, 2010.
- Merleau-Ponty, Maurice. *Notes de cours sur l'Origine de la géométrie chez Husserl*, Puf, Paris, 1998; trans. L. Lawlor and B. Bergo, *Husserl at the Limit of Phenomenology*, Northwestern University Press, Evanston, 2002.
- Merleau-Ponty, Maurice. *Parcours Deux: 1951-1961*, Verdier, Paris, 2000.
- Pradelle, Dominique. *Intuition et idéalités. Phénoménologie des objets mathématiques*, Puf, Paris, 2020.
- Pradelle, Dominique. *Être et genèse des idéalités. Un ciel sans éternité*, Puf, Paris, 2023.
- Taddio, Luca. *Merleau-Ponty. L'apparire del senso*, Feltrinelli, Milano, 2024.

Il problema degli oggetti matematici nella fenomenologia di Merleau-Ponty

L'articolo affronta il problema degli oggetti matematici nella fenomenologia di Merleau-Ponty, mettendo in rilievo il loro ruolo centrale nella sua teoria dell'espressione e della costituzione della verità. Attraverso la critica a empirismo e idealismo, viene mostrato come le idealità matematiche non siano essenze autosufficienti, ma configurazioni (*Gestalten*) costituite da operazioni percettive, motorie e simboliche. La matematica emerge così come forma di espressione capace di generare nuovi significati, senza ridursi né a una derivazione delle proprie strutture dalle legalità dell'esperienza percettiva, né a un puro formalismo. L'articolo conclude proponendo un'ipotesi di sintesi tra approcci fenomenologici "pre-teorici" e "intra-teorici", evidenziando come la prospettiva merleau-pontiana consenta di concepire gli oggetti matematici in chiave dinamica e storica.

PAROLE CHIAVE: Merleau-Ponty, Fenomenologia, Matematica, Idealità, *Gestalt*.

The Problem of Mathematical Objects in Merleau-Ponty's Phenomenology

The article examines the problem of mathematical objects in Merleau-Ponty's phenomenology, emphasising their central role in his theory of expression and the constitution of truth. By analysing his critique of empiricism and idealism, it argues that mathematical idealities are not self-sufficient essences but configurations (*Gestalten*) shaped by perceptual, motor, and symbolic operations. Mathematics thus appears as a form of expression capable of producing new meanings, without reducing itself either to a derivation of its structures from the laws of perceptual experience or to pure formalism. The article concludes by proposing a synthesis between "pre-theoretical" and "intra-theoretical" phenomenological approaches, showing how Merleau-Ponty's perspective allows for a dynamic and historical understanding of mathematical objects.

KEYWORDS: Merleau-Ponty, Phenomenology, Mathematics, Idealities, *Gestalt*.