Proclus and the Intelligible-Intellectual Roots of Mathematical Theology

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1. Platonism and the Philosophical Role of Mathematical Images

The role played by the Platonic dialogues in constructing an axiomatic-deductive mathematical knowledge, as well as the influence that mathematics exerted in the evolution and refinement of Plato's philosophical method, are still matters of debate.[1] What seems less doubtful is that we have evidence of a positive and critical relationship with mathematics, not only concerning its methodological aspects (e.g., the use of hypotheses, the role of calculation) but also regarding the recourse to images in problem-solving. From this perspective, one could argue that Plato's interest in mathematics contributed to both intertwining the two sciences and enriching the reflection on issues central to the Platonic model itself, such as, for instance, the ontological status of images, the possibility of being in error, and the relationship between arithmetic and geometry. These three topics are, in some ways, interconnected.

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[1] See Marongiu (2025: 5–7) and cross-references. This paper is part of the project FIS 2021 – Ancient Science, Ancient Philosophy. I am grateful to John Finamore for pre-reading my work and providing suggestions and to Daniela Taormina for discussing on these topics. I thank Marco Caruso for some corrections. Furthermore, I sincerely appreciate the anonymous reviewer for their proposed improvements.

What does it mean to make an error, and what is the status of error when constructing a science? Let's consider a dialogue that would represent a kind of turning point for the intertwining of mathematics and philosophy. In the *Meno*, the slave's arithmetical error in calculating areas is corrected when the abstract calculation by numbers is abandoned in favor of a visible support in the procedure: in other words, numbers as such are neglected, and it is agreed to work only with squares.[1] It would seem, therefore, that it is easier to err with numbers, especially if they are abstracted from figures, than with figures themselves. This choice would also leave traces in Euclid's *Elements*, where an attempt to operate geometrically without numbers is preferred.[2]

The deceptive power of numbers might explain their wide use not only in mathematics but also in Greek poetry and rhetoric, due to the capacity, apparently intrinsic to enumeration, to enchant by the semblance of an accuracy.[3] Thus, numbers, especially when associated with quantities that are not geometrically visualized, may compel the assent of the listener or the reader, becoming an instrument of distortion of reality rather than of description and knowledge. It would seem, therefore, that the more a number is abstracted from a geometric context, the greater the possibility of error. This, precisely, brings us back to the choice made in the *Meno* to abandon the arithmetical analysis of the problem and adopt a geometrical approach.

What has been mentioned leads to a first, temporary conclusion: numbers possess a deceptive power by virtue of their intrinsic abstraction, which prevents the enumerating soul from having a numbered object of its own at hand. In sum, it is the possibility of calculating intransitively (i.e., solely and exclusively through numbers) that creates the conditions for deception in enumeration. This last assertion seems at first glance to contradict the ontological inferiority of the sensible image compared to its intelligible model: if the embodied soul has to draw figures to grasp the truth, then it derives from the more sensible aspects of geometrical operations the necessary support to evade deception. Thus, what can deceive as an image is also capable of sustaining the overcoming of error.

Such a conclusion confirms the ambiguous status of the image in Plato:[4] indeed, an image maintains a relationship with its model, thus referring back to the other from itself and revealing itself to be an instrument for the path toward the original. In this respect, insofar as geometrical figures are more related to the sensible, which is the image of the intelligible, they would – if properly utilized – aid the embodied soul in correctly framing of problems and objects. However, this would be more difficult to do when questions are arithmetically set, since the soul, precisely because it is embodied, seems to need the visible to move toward the intelligible.

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[1] See Pl. *Men.* 82a ff.

[2] See Lee (2022).

[3] See Sicka (2022); van Berkel (2022); Sing (2022).

[4] See, e.g., Esposito (2022: 94–136).

However, it is the dialogues themselves that caution against such an unambiguous result. While, as anticipated, numbers are both poetically-rhetorically and arithmetically placed, geometry, for its part, can be compared to painting, since both use representation as their reference.[5] Thus, deception is possible by both resorting to numbers and figures. It follows that we must either beware of mathematics or establish an epistemological foundation, which is the premise and the outcome of an ontological clarification.

This foundational project, alluded to in the dialogues, is further developed by late Neoplatonism, when mathematics becomes an instrument of theology. Although this question cannot be explored in depth here, it is essential to mention in this regard that the status of mathematics in Platonic dialogues cannot be equated with the role that this science occupies in Neoplatonism, particularly in its later stages. It is certain that Platonic inquiry gives rise to questions that will later be the subjects of discussion among exegetes: it suffices to consider the ancillary role of mathematics concerning dialectic, partly authorized by the central books of the *Republic*, or the way in which dialogues such as the *Theaetetus* and the *Parmenides* intertwine numbers and figures with the analysis of the nature of knowledge/dialectic and being, or, furthermore, the role assigned to the limit and the unlimited in the *Philebus*.[6] Despite of this, it is late Neoplatonism that initiates a systematic investigation into the ontological placement of mathematical entities, which in turn entails a more clearly defined role for mathematics in onto-theological examination.

2. Proclus on Mathematical Theology

In *Platonic Theology*, Proclus, as is well known, identifies four paths within theological discourse. Two of these directly engage with their object: the divinely inspired discourse and the dialectical one. In the other two, the theological truths are instead 'indicated'[7] as they are not immediately shown and demonstrated but are either veiled – as it may happen through symbols – or addressed through images.[8] This latter path is identified with mathematics:

> The way that proceeds through images (διὰ τῶν εἰκόνων) is Pythagorean, since it was precisely by the Pythagoreans that the forms of mathematical knowledge were discovered to arrive at the recollection of divine reality, and through these, as through images, they sought to arrive at it. Indeed, they traced numbers and figures back to the divine.[9]

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[5] See Marongiu (2025: 103–105).

[6] On these issues, I refer again to Marongiu (2025).

[7] Procl. *Theol.Plat.* 1.4.20, 2: δι' ἐνδείξεως.

[8] See Procl. *Theol.Plat.* 1.4.17, 18–24, and Steel (2007: 215–216). About the difference between image and symbol, see, e.g., Chlup (2012: 188–192); Domaradzki (2014: 125).

[9] Procl. *Theol.Plat.* 1.4.20, 8–11. Translations from *Platonic Theology* are mine. See also Procl. *in Euc.* 21, 25–22, 6.

In this respect, it should be noted that Proclus, while maintaining that mathematical theology resorts to images, also acknowledges its elaborateness, as it intertwines with other theological approaches. Indeed, as reality is ontologically ordered due to the interconnection between the parts – which is made possible by both their subordination to Being and Being's dependence on the One – it follows that the four theological ways, insofar as they epistemologically conform to the ontological order, are not rigidly distinct. Instead, they represent different perspectives on the same object, shaped in part by the varying nature of the audience.[10] For instance, regarding the intertwining of mathematics and dialectic, Proclus opts for argumentative procedures and terminology of mathematical origin when constructing his system of theology as a science. This intersection is authorized by the acknowledgment of the dependence of mathematics on dialectic – that epistemologically corresponds to the ontological dependence of mathematical entities on intelligibles in the proper sense –,[11] which explains why Proclus recognizes in dialectic a method consisting of four *dynameis* that also apply to mathematics – analysis, division, definition, and demonstration.[12]

Such a model depends on at least two traditions: one dating back to the *Sophist*, a dialogue in which a four-part method for dialectic can be found, and the other, going back to Iamblichus, which also refers to mathematics as a quadripartite procedure, partly drawn from Aristotelian logic.[13] And it is still to Iamblichus that the emphasis on Pythagorean authorship of the theological function of mathematics is owed, as well as the idea that it is impossible to philosophize without mathematics, due to the ability of mathematical entities to be mirrors of reality.[14]

Therefore, in his mathematical theology project, Proclus brings together doctrines of Platonic, Neoplatonic, and (Neo)Pythagorean origin: the possibility that mathematics encourages recollection as well as the mathematical structure of the soul dates back to Plato;[15] the use of numbers and figures in the theological sphere is ascribed to the Pythagoreans,[16] although it would be more accurately described as a Neopythagorean readaptation of Pythagorean models, since, while the Pythagoreans seem to have preferred arithmetical images, it would be the Neopythagoreans who extended mathemati-

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[10] See Procl. *Theol.Plat.* 1.2.8, 16–9, 7.

[11] On mathematics' ontological dependence on dialectic, see, e.g., MacIsaac (2010).

[12] See Procl. *Theol.Plat.* 1.9.40, 5–10; *in Euc.* 42, 12–43, 1; 43, 18–21. The intertwining of mathematics – and more specifically, geometry – and dialectic proves useful, e.g., in the demonstrative procedure (see *Theol.Plat.* 1.10.45, 24–46, 2). On these issues, see Charles-Saget (1982: 271 ff.); O'Meara (1989: 198–204; 2017: 175–179); Martijn (2014); Opsomer (2022).

[13] See Iambl. *Comm.Math.* 64, 20–65, 29. See, e.g., O'Meara (1989: 47); Bechtle (2000; 2002: 209–216).

[14] See Iambl. *Comm.Math.* 96, 25–97, 8.

[15] The identification between the essence of the soul and mathematical realities is probably also influenced by the doctrine, attributed to Xenocrates and recovered by both Plotinus and Iamblichus, according to which the soul is conceivable as a number that moves itself. See Arist. *de An.* 1.2.404b 27–28; 1.4.408b 32 ff.; Plu. *De procr. an. in* Tim. 1.1012D ff.; Plot. *Enn.* 6.6.9, 29–31 (where the Xenocratean expression, however, relates to νοῦς); Iambl. *Comm.Math.* 40, 19 ff.

[16] See Procl. *in Euc.* 22, 1–16.

cal theology to geometry as well.[17] In particular, although divine geometry cannot be ruled out from ancient Pythagoreanism, it is more likely that it was Plato who initiated or at least firmly established the use of geometrical figures in theology.[18] Lastly, Proclus certainly owes a debt to Iamblichus in terms of his recognition of the ontologically intermediate nature of mathematical entities.[19] It is from this contamination of different traditions that numbers and figures acquire, in the theological system proposed by Proclus, an ascending function toward the divine.

The theological role of mathematical objects does not directly concern the characteristics they possess in the processes of calculation and measurement on sensibles but relates to those numbers and figures that can be conceived as the essence of the soul. Only this kind of mathematics is theological, as it helps the soul to become akin to bodiless natures, thus leading toward the intelligible.[20] Indeed, whereas perceptions anchor the soul to divisible and lower realities, which are an obstacle to ascent, the mathematical objects that the soul discovers within itself are endowed with the opposite characteristics and favor recollection:[21]

> We must not suppose number in the soul to be a plurality of monads, nor understand the idea of interval as bodily extension, but must conceive of all the forms as living and intelligible paradigms of visible numbers and figures and ratios and motion.[22]

Regarding arithmetic, it is, e.g., the very understanding of the definition of number that would prepare the soul to grasp the structure of being. Proclus borrows from the Pythagoreans the idea that numbers, as they gather a class of objects with shared characteristics thus unifying a multiplicity, contribute to penetrating the ordering of reality, conceived as a series led back to the monad that generates the series itself.[23] Regarding geometry, the soul's ascending activity is stimulated by both its procedures – insofar as geometry 'from one theorem to another, ascending step by step, elevates the soul to a higher world and no longer allows it to either descend among the things of the sensible world (...) or (...) not to fly away from them'[24] – and certain figures. Among these, the

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[17] See Steel (2007: 217–218).

[18] See again Steel (2007: 227–235).

[19] See below, § 3. For further discussion of the role played by Iamblichus, see Maggi (2010: 159 ff.).

[20] See Procl. *in Euc.* 20, 27 ff., and Plot. *Enn.* 1.3.3 quoted by Proclus (*in Euc*. 21, 21). It is worth pointing out that Proclus' theological use of mathematics cannot disregard actually doing mathematics: only those who are familiar with the procedures of mathematics grasp the image-like nature toward the divine that is proper to numbers and figures. Moreover – as will be discussed in the third section – the theological status of numbers and figures as images arises from both mathematics' place within epistemology and the ontological rank of its objects.

[21] See Procl. *in Euc.* 46, 3–18.

[22] Procl. *in Euc.* 17, 6–11. Unless otherwise specified, translations from Euclid commentary are those of Morrow. For the difference between mathematical entities as such and those applied to sensible objects, see, e.g., Procl. *in Euc*. 40, 1–4 and the discussion in Klein (1992: 46 ff.).

[23] See the discussion in Cutino (2023: 158 ff. and cross-references). See also Cleary (2000: 94).

[24] Procl. *in Euc.* 84, 19–23 (my translation).

divided line provides a good example of a (Neo)Platonized Pythagorean theology,[25] since the principles that regulate the structure of being – namely, the seamless procession, guaranteed by the One, and the dependence of what is ontologically lower on what is higher – are indicated respectively by the nature of the line and the inequality between the segments:

> So wishing to indicate that the procession of existent things from the One was continuous (...), <Plato> conveyed this continuity through the image of a single line (...) since no emptiness separates existent things. (...) At any rate, it is necessary that the process of becoming must be assimilated to that which produces it. Therefore, since that <producing it> is one, the process of becoming must of necessity be continuous, because continuity is akin to unity. (...) For these reasons, <Plato> takes a single line and divides it in two, dividing it not into equal parts, but into unequal ones. (...) The division of all things into unequal parts indicates, in his view, the rank of the things divided.[26]

However, when the straight line is described as 'the separation (ἀπόστημα) of the center from all parts of the circumference,'[27] it is implicitly acknowledged that truth lies only in circularity as it reflects both the principle of generation and return,[28] and the symmetry between these two processes.[29] More specifically, Proclus adopts the Plotinian image of the spiritual circles referring to each other to emphasize the relationship between the hypostases and their dependence on the One:

> The extensionless point is prior to the line, and surely in the same way the intellect precedes the soul, having included it in a manner that is undivided and antecedently comprehended it indivisibly. (...) So he <the Demiurge> properly distinguished them, and the account connects the straight line, and after this the circle (...) to the soul, while the point is connected to intellect. (...) Intellect in turn has the status of the circle in relation to the nature of the Good around which it converges as a whole at every point by dint of its yearning for the One and its contact with the One.[30]

Here the circles are, so to speak, vertically structured and culminate in an absolutely unitary center that transcends all circumferences, not being the center of its circumferen-

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[25] On Proclus' interpretation of the divided line, see d'Hoine (2018).

[26] Procl. *in R.* 1.288, 6–26 (Baltzly's, Finamore's, Miles' translation). See also Procl. *Theol.Plat.* 2.7.44, 1–16.

[27] Procl. *in Euc.* 185, 24–25.

[28] See, e.g., Procl. *in R.* 2.46, 18–21.

[29] From this perspective, Sara Rappe (2000: 181) underlines that circularity can also indicate – for instance, in Proclus' exegesis of the *Timaeus* – the double movement of the soul, since 'the two circles described in the soul are related to the two essential moments of this manifestation, that is, procession and return.' On this point she quotes Procl. *in Ti.* 2.255, 24–33.

[30] Procl. *in Ti.* 2.242, 29–243, 17 (Baltzly's translation). See also *in Euc.* 142, 2–5. See Plot. *Enn.* 4.3.17, 12–14; 5.1.7, 4–8; 6.8.18, 1–4; 6.9.8, 2–4. For Proclus' dependence on Plotinus, see Oosthout (2025: 55). For

ce. When a subordinate nature/circle relates to the further nature/circle constituting its center, the geometrical definition of a circle seems to be denied. How could it be possible to conceive of a circle if it could not be defined as the set of all points that are at a given distance from a given point, i.e., its center? Moreover, how can a center that geometrically is not the center of anything be admitted? Reflecting on the negation of the geometrical definition of the circle forces the mind to an effort that culminates in the admission that a circle will be such not by virtue of a center it possesses in itself but thanks to a center that, precisely because it is beyond circles, is the root of all circles. In this regard, it could be argued that, although the soul dances around that which it seeks, unfolding the unity of what it possesses,[31] nevertheless, just as mathematical images bring the soul closer to the vestibule (ἐν προθύροις) of primary forms[32] in the same way, reflection on these spiritual circles lacking their geometrical definition as circles can prove fundamental in favoring the actual conversion almost up to the antechamber of the Good.[33]

These premises would seem to give geometrical images a key role in the ascent of the individual soul. This is true. However, as will be shown, the status of geometry is, in turn, based on the Proclean multilevel structure of the intelligible-intellectual realm, in which number becomes the paradigm of all divided reality.

3. The Intelligible and Intellectual Roots of the Soul's Ascent

3.1. Soul and Intermediate Entities

As mentioned above, the ascending function of mathematics lies both in its procedures, as they are characterized by order and the power to lead multiplicity back to unity, and its objects (numbers as well as figures), as they are appropriate images of reality. The status of images for mathematical objects is based on at least two assumptions: (1) they reproduce certain aspects of being iconically; (2) they are images by their participation in higher realities.[34] In the latter sense, the ascending power of mathematics is ontologically strengthened by the Proclean theory of intermediates, according to which they would become bridges between two realms, namely, the intelligible and the sensible.[35]

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a discussion of the multiple meanings of the metaphor of the circle in Proclus, Beierwaltes (1965: part 2) still remains fundamental. See also O'Meara (2005: 139–141).

[31] See Procl. *in Ti.* 1.248, 2–6.

[32] See Procl. *in Euc.* 5, 2–3, and Cleary (2000: 88). Of course, as has been noted in this section, this is possible when the substance of mathematics has been grasped not in its relation to the sensible being measured, but from those immaterial aspects that are typical of numbers and figures in the soul.

[33] See Procl. *in R.* 1.295, 12, and Baltzly, Finamore, Miles (2022: 186, notes 54–55). See also Rappe (2000: 133).

[34] See, e.g., Moutsópoulos (1981: 267). About the ambivalent approach to the notion of image, see Sheppard (1995).

[35] See Procl. *in Euc.* 3, 1–7.

Although traces of a tripartite model can be epistemologically found in Plato's dialogues – for instance when mathematics is made to coincide with discursive knowledge and the intermediate nature of διάνοια between mere opinion and noetic science is emphasized –,[36] the ontological intermediacy of mathematical entities does not seem to find explicit and systematic confirmation in Plato[37] but was acknowledged as Platonic by Aristotle when discussing the so-called 'unwritten doctrines' and the difference between arithmetical and ideal numbers.[38] This Platonic-Aristotelian doctrine was embraced by a part of the Neoplatonic tradition, which also often resorted to contaminations between the Aristotelian testimonies and some topics of Neopythagorean origin. In particular, the increased emphasis given by late Neoplatonism to intermediates relies on two reasons: (1) the spread of a debate concerning the relationship between philosophy and mathematics dating back to Iamblichus; indeed, it is from Iamblichus that the reading of the divided line – a reading of even Neopythagorean inspiration – becomes central to the elaboration of the Neoplatonic theological system;[39] (2) the tendency to multiply hypostases, which made it necessary to readapt the investigation into the nature of mathematical entities to the complete account of the degrees of reality.[40] It is in the light of these assumptions that in both the Euclid Commentary and the *Republic* Commentary, Proclus attributes the doctrine of intermediate mathematical entities to Plato:[41]

> Mathematical being necessarily belongs neither among the first nor among the last and least simple of the kinds of being but occupies the middle ground between the partless realities – simple, incomposite, and indivisible – and divisible things characterized by every variety of composition and differentiation.[42]

Intermediate entities are conceived as objects proper to discursive reason, which, in this sense, is also intermediate:[43]

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[36] See Pl. *R.* 6.509d–511e; 7.533e–534c.

[37] On this subject, which cannot be further explored here, see the bibliographical discussion in Marongiu (2025: 12–22).

[38] See, e.g., Arist. *Metaph.* 1.6.987b14–18; 13.6.1080b11–14. See the bibliographical investigation in Lopes, Cornelli (2016), and Maggi (2025).

[39] See, e.g., Napolitano Valditara (2000).

[40] See, e.g., O'Meara (1989: 79–81; 90; 135–141). Therefore, while Plato does not clearly answer regarding the twofold level of intelligibles, Iamblichus is explicit, as proved by the fact that the objects proper to discursive thought are defined as 'second and inferior (δεύτερα δὲ καὶ ὑποδεέστερα).' See Iamb. *Comm.Math.* 32, 15–16; 10, 7–13; 53, 29–54, 13.

[41] For the dependence of some Proclean arguments on Iamblichus, see Mueller (1987: 334–338; 342–343); Dillon, Urmson, Gertz, Griffin, Sorabji (2020: 22–23). For Proclus' dependence on Syrianus, see Nikulin (2008: 156) and d'Hoine (2018: 587–589).

[42] Procl. *in Euc.* 3, 1–7. See Nikulin (2019: 129–130). For a comparison between Euclid Commentary and *Republic* Commentary on this topic, see d'Hoine (2018: 590–593).

[43] See Nikulin 2008 (156–157).

> Though second in rank to intellect and the highest knowledge, understanding is more perfect, more exact, and purer than opinion. For it traverses (διεξοδεύει)[44] and unfolds the measureless content of Nous by making articulate its concentrated intellectual insight (νοερᾶς ἐπιβολῆς), and then gathers together again the things it has distinguished and refers them back to Nous.[45]

The relationship between discursive reason and really existing mathematical objects provides theology through images with both an epistemological and ontological basis: what the soul assumes as a means of ascending toward the intelligible is not imagery – therefore, the recourse to mathematical images is neither accidental nor arbitrary. Furthermore, the interconnection of intermediate entities and the soul's movements and activities entails that the mathematical path in the theological sphere is grounded on the very structure of the soul. Indeed, when Proclus defines mathematical entities as λόγοι, since 'their properties and structure may become explicit in a discursively developed argument,'[46] he means that such objects are produced by the soul, which in turn implies that the soul's reflecting on mathematical objects involves reflecting on itself:[47]

> We must therefore posit the soul as the generatrix of mathematical forms and ideas. And if we say that the soul produces them by having their patterns in its own essence and that these offspring are the projections (προβολαί) of forms previously existing in it, we shall be in agreement with Plato and shall have found the truth with regard to mathematical being.[48]

The possibility of overcoming the deceptive power of mathematics arises from a peculiar role of the imagination. It is conceived by Iamblichus, likely influenced by Aristotle, as the faculty capable of perceiving in dimensionality the images (εἴδωλα) of ideas.[49] While the Platonic imagination has as its proper objects mere images of the mind – with an implicit association with the notion of appearance and deception – from Aristotle onward, the φαντασία becomes an intermediate faculty that directs perception toward the διάνοια, thus playing a fundamental role in the processes of understanding and insight.[50] As a result, Iamblichus interprets the Platonic image of reflections on water from two different points of view.[51] On the one hand, he identifies them with the lowest

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[44] The use of διεξοδεύειν to indicate the impossibility for the διάνοια to intuitively grasp its objects goes back to Plotinus. See Plot. *Enn.* 5.9.7, 10.

[45] Procl. *in Euc.* 4, 8–14.

[46] Nikulin (2019: 132). See also d'Hoine (2018: 589) and Helmig (2017: 195–199).

[47] See O'Meara (2017: 172–173).

[48] Procl. *in Euc.* 13, 6–11.

[49] See Iamb. *Comm.Math.* 33, 24–34, 12.

[50] See Lepschy (1987: 21).

[51] This twofold meaning of the mirror would already be found in Plato, since while in the divided line the reflections on water appear in relation to shadows and thus to εἰκασία, in the myth of the cave they also seemingly are attributable to dianoetic knowledge. See Pl. *R.* 6.509e1–510a3; 7.516a5–b7. In this regard, see, e.g., Napolitano Valditara (2007: 334–335).

level of the divided line.[52] On the other, he states that mathematics 'hunts for images of the works of nature, as through mirrors that differ in brilliance,'[53] thus providing the conditions for a non-deceptive use of φαντασία. In short, if it is true that every mirror or image is deceptive, it is also true that both the imagination and its objects represent the embodied soul's way of grasping in extension what is not in itself unfolded.[54]

The intermediate status of the imagination is further refined, as is well known, by Proclus' theory of projection.[55] He also makes positive use of the mirror metaphor,[56] showing how the soul's projections are means of embracing the λόγοι that soul itself produces from higher realities.[57] Therefore, imagination is not misleading but can be conceived as a mirror multiplying which is just one in itself,[58] thus allowing ideas to 'remain the ultimate objects of mathematical thought.'[59]

3.2. The Intermediates and the Intelligible-Intellectual Realities

The ontological autonomy of intermediates does not contradict the principle of the causal dependence of a lower nature on a higher one – as it is exemplified by the aforementioned divided line – which is one of the fundamental topics of Neoplatonism.[60] Indeed, the objects of the διάνοια are the substantial effect, at a distinct and lower ontological level, of the causal action of further ontologically pre-existing realities, and it is only from the perspective of this model that arithmetical-geometrical entities are images. Thus, intermediates are the products of the soul but, at the same time, are produced by something ontologically higher than the soul, on which the soul itself depends:

> If, however, mathematical forms do not exist by abstraction from material things (...), of necessity the soul must obtain them either from itself or from Nous, or from both itself and that higher intelligence. Now if the soul gets them from itself alone, how can they be images of intelligible forms? (...) Yet if they come from Nous alone, how can the inherent activity and self-moving character of soul be preserved when it receives its ideas from elsewhere, like a thing moved by outside forces? (...) There is left only the conclusion that soul draws its

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[52] See Iamb. *Comm.Math.* 32, 25–33, 13; 34, 4–6; 35, 27–36, 23; 38, 29–39, 5.

[53] See Iamb. *Comm.Math.* 96, 27–28.

[54] See Iamb. *Comm.Math.* 43, 19–44, 9. See Sheppard (1997) about the Iamblichean φαντασία and the role played by Plotinus (see, e.g., Plot. *Enn.* 4.3.30, 2–11).

[55] On projection and its relationship with Platonic recollection, see, e.g., Cleary (2000: 90–91); MacIsaac (2001); Nikulin (2008; 2019: 140–143); Lernould (2011); Chlup (2012: 144–147); d'Hoine (2018: 589–590).

[56] See Procl. *in Euc* 141, 2 ff.

[57] See Giardina (2008: 37–39) and MacIsaac (2002: 99).

[58] See, e.g., Charles (1971). See d'Hoine (2018: 589–593) for a comparison between the projective theory in Euclid Commentary and similar hints in the 12th dissertation of *Republic* Commentary.

[59] Sheppard (1997: 113).

[60] On the seamless degrees of reality guaranteed by causal dependence see, e.g., Martijn, Gerson (2017: 51–55; 58–61).

> concepts both from itself and from Nous, that it is itself the company (πλήρωμα)[61] of the forms, which receive their constitution from the intelligible patterns but enter spontaneously upon the stage of being.[62]

Soul's dependence on the Intellect, in turn, is set within a unitary ontological framework that Proclus carries out from the exegesis of the *Parmenides*.[63] It is from that dialogue that the philosopher formulates a peculiar participatory model based on the following assumptions: (1) everything that exists proves its subordination to the One beyond Being through its one-manifoldness structure: therefore, everything that is included in Being is a whole, according to unfolding degrees;[64] (2) a participated nature, conceived as a cause, does not manifest in itself the characteristics it produces in the participating realities, whereby it is both unparticipated and participated in;[65] (3) although the cause remains separate in itself, any ontologically higher level pre-contains the one that comes from it, wherefrom it follows that 'not only do superior principles implicitly contain the characteristics they produce, but inferior principles also retain images of the characteristics of their creators.'[66] Accordingly, the (Neo)Platonic One Being, as the first cause in the sphere of being, on the one hand pre-contains everything that exists; on the other hand, it has to possess characteristics that are different from what follows, thus constituting itself as a transcendent whole before the parts.[67]

Based on these criteria, Proclus rejects those readings of the *Parmenides* that would have traced back to the same rank of Being all the conclusions to be drawn from the so-called second hypothesis:[68]

> As the manifold set of conclusions should be neither attributed only to the wholeness of being nor identically placed in all parts of being, I believe that it must be maintained that a certain part of being corresponds to each conclusion.[69]

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[61] For this lexical choice, see Morrow (1992: 14, note 28).

[62] Procl. *in Euc.* 15, 19–16, 7. See Cleary (2000: 91–92). On Proclus' criticism of Aristotelian abstractionism–to which Proclus opposes the model of projection (see also the discussion above, § 3.1) –, see, e.g., Nikulin (2019: 132); Helmig (2017: 193–199).

[63] Central to the Neoplatonic paradigm is, as is well known, a metaphysical interpretation of the *Parmenides*, probably dating back to Speusippus, which intertwines with the testimonies regarding the academic doctrines on numbers and principles. On these issues, see, e.g., Dillon (2011); Szlezák (2011); Gerson (2016).

[64] See, e.g., Procl. *Theol.Plat.* 1.10.46, 14–17; Oosthout (2025: 83 ff.).

[65] On Proclus' asymmetrical interpretation of the participatory model from the *Parmenides*, see, e.g., Gerson (2011); d'Hoine (2019); Greig (2021: 73–117); Martijn (2022: 75–78). See also Nikulin (2019: 125–127).

[66] Oosthout (2025: 157).

[67] On the principle of the whole as a structure before the parts, see the discussion in Oosthout (2025: 91–98). See also Siorvanes (1996: 70–71). For similar issues in Plato, see Chiurazzi (2023) and Harte (2002). I use here the notion of 'whole before the parts' logically and not metaphysically. Actually, the very first metaphysical wholeness is represented by the Life, i.e., the second *element* of the intelligible triad. See, e.g., Opsomer (2000: 363).

[68] See Procl. *Theol.Plat.* 1.10.41, 24–42, 20. See Brisson (2017: 208–209) for a presentation of Proclus' criticism of earlier interpretations of the second hypothesis of the *Parmenides*. For a discussion of the Neoplatonic readings of the second hypothesis of the *Parmenides*, see, e.g., Beierwaltes (1985: 193 ff.) and Steel (2000).

[69] Procl. *Theol.Plat.* 1.11.48, 10–15.

Therefore, the first conclusions pertain solely to the One Being. Hence, from more unitary to less unitary realities, the procession continues orderly and seamlessly until constituting different ontological levels.[70] As a result, the One Being is vertically and asymmetrically ordered: the earliest determinations of Being – as they are closely related to the One of the first hypothesis – give rise to a multiplicity κρυφίως and ἀδιακρίτως, in which the One and the Being are unified and the Otherness has not yet divided them; the following ones will have a more manifold nature and, at the stage of the latest determinations, will be closer to the following level of reality.[71]

This reading of *Parmenides*' second hypothesis affects the Proclean theory of mathematical entities. In particular, when Proclus is reasoning about the so-called 'generation of numbers' from the *Parmenides*,[72] he concludes, from the different ontological status of causes and effects:

> As (...) Being is the producer of the first number, and (...) number is produced by Being (...), and since Plato presents the One Being and number separately, they cannot both be placed on the same ordered level of determinations of Being. Indeed, what is cause and what is caused in no way can have the same (...) rank, but these realities are distinct from one another.[73]

Indeed, if Being is the cause of number – otherwise, Plato would not have made the number arise from the One Being – and the cause pre-contains the effect without coinciding with it, number, yet pre-contained in the One Being, must belong to an ontologically lower level.

Moreover, by virtue of the ontological dependence of the generation of numbers on Otherness,[74] number cannot be placed among unified natures. As both the identification between number and Being *per se* – by virtue of One Being's unified nature[75] – and that between number and Life – which is the power bringing One and Being together[76] – can be rejected, Proclus then discusses the relationship between the intelligible Intellect/Living Being in itself[77] – namely, the third ontological *element* constituting the intelligible triad – and number:

> How then can we place in the Living Being in itself the first number? Therefore, if someone wanted to say that number exists in the Living Being in itself, he would say this in the sense that number is there causally and intelligibly and that it has been intellectually differentiated by Otherness. (...) If, on the contrary, it were affirmed that the intelligible Living Being is *per*

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[70] See Van Riel (2017: 87–88); d'Hoine (2017: 99–101); Oosthout (2025: 94–95).
[71] See Procl. *Theol.Plat.* 3.9.39, 20–24, and 1.11.49, 20–25.
[72] See Pl. *Prm.* 143b3 ff.
[73] Procl. *Theol.Plat.* 1.11.50, 19–51, 2.
[74] See Procl. *Theol.Plat.* 4.28.82, 23–83, 5.
[75] See Procl. *Theol.Plat.* 4.27.79, 16–80, 6.
[76] See again Opsomer (2000: 363).
[77] On this triad, see, e.g., d'Hoine (2017) and again Opsomer (2000).

> *se* a number, one would have to admit distinction and also otherness in those gods, which we said were placed (...) above the wholeness of things. Since every section and division begins with the intellectual gods, hence otherness proceeds.[78]

This reasoning stems from the fact that, if Plato describes the Living Being in itself as one and one-begotten,[79] then Otherness cannot yet have manifested itself. Hence, number does not belong to the intelligible triad but has to be settled in intellectual realities: more precisely, it is the very first (τὸ πρώτιστον) among them[80] – thereby it is an intelligible-intellectual reality – and everything that follows is both numerically ordered and diversified.[81] However, based on the asymmetrical pre-containment, the intellectual number has its cause as an occult number (κρύφιον)[82] – which is not yet a number in the proper sense – in the ontologically higher level.

Concerning the ontological degrees from which the intellectual number proceeds, Proclus traces back to the *Philebus* the idea that all that exists descends from the different causal action of the same two principles, namely the Limit and the Unlimited,[83] by which numbers while increasingly grow and are sequentially ordered, yet remain finite. Furthermore, the two intelligible principles determining the distinction between odd and even numbers, i.e., the monad and the dyad, must be considered, which are not numbers in themselves but transcendent causes of numbers, arising from the unitary manifoldness of the intelligible:[84]

> To find the principles of mathematical being as a whole, we must ascend to those all-pervading principles that generate everything from themselves: namely, the Limit and the Unlimited. (...) This is why in these orders of being there are ratios proceeding to infinity but controlled by the principle of the Limit. For number, beginning with unity, is capable of indefinite increase, yet any number you choose is finite.[85]

> Firstly, the intelligible number is disclosed to us. (...) Every number is manifold, but other is the multiplicity that subsists unitarily; other is that subsisting in a differentiated way. (...) Hence it has been noted that there are the monad and the dyad, the very first and transcend-

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[78] Procl. *Theol.Plat.* 4.32.96, 9 ff.

[79] See Pl. *Ti.* 31b3.

[80] See Procl. *Theol.Plat.* 4.33.98, 2–3, and Terezis, Tempelis (2017: 54–58). Even in Euclid Commentary, numbers are associated with realities marked by otherness; in that case, the soul. See *in Euc.* 36, 23–25.

[81] See, e.g., Procl. *Theol.Plat.* 4.29; 34.

[82] See Procl. *Theol.Plat.* 4.32.95, 20.

[83] See Procl. *in Euc.* 5, 11 ff., and Cleary (2000: 88); Butler (2008: 132–133); Nikulin (2019: 133); Kutash (2011: 69–70).

[84] On the possibility of identifying monad and dyad with the Limit and the Unlimited, see Terezis, Tempelis (2017: 56).

[85] Procl. *in Euc.* 5, 14 ff.

> ent principles of numbers, and that in these principles manifoldness is found in a unified way. Indeed, the monad, the source of numbers, and the dyad causally possess all multiplicity (...), and it is for this reason that intelligible multiplicity is not yet number but intelligible multiplicity.[86]

Finally, the intellectual number – intermediate between the intelligible and further lower ontological levels – is what is actually divided by Otherness according to even, odd, and their combinations, from which the diversified divine orders of both the intellectual and encosmic levels follow. In this way, not only is the numerical structure of the World Soul and the Cosmos itself justified[87] but the mathematical activity of the individual soul as discussed in Euclid Commentary finds its basis.[88]

To conclude, such a descending τάξις, marked at each level by number,[89] involves the Proclean theory of intermediate mathematical entities conceived as activities of the soul. In this multiplication of ontological levels causally produced by one another, derivation and return become symmetrical paths that allow the soul, when reflecting on mathematical objects and engaging with mathematics through them, to rise toward its roots. For since the soul and its objects depend on higher realities, when the soul unfolds what it possesses within itself, it is unfolding something that primarily and unitarily preexisted in it and before it.[90] In this way, both the theological mathematics is grounded and the ascent of the soul through mathematics is assured: indeed, numbers have a *natural* relationship with truth (πρὸς τὴν ἀλήθειαν ὁλκόν) and an aptitude to elevate (τὸ ἀναγωγόν) that anchors the soul to its causes.[91] Not surprisingly, in his Commentary on Euclid, Proclus emphasizes the role of mathematics in the moral sphere.[92]

Within this framework, the theological role that Proclus assigns to geometrical figures – even though recognizing the ontological priority of arithmetical entities[93] – can be better understood. Precisely because figures are more unfolded than numbers, it is above all through figures that the embodied soul, after *scattering in leaves* its innate principles, can orderly ascend from effects to their causes, first gathering the unfolded principles into itself, and then tracing them back to their further roots.[94]

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[86] Procl. *Theol.Plat*. 4.28.81, 3 ff.

[87] See, e.g., the discussion in Oosthout (2025: 99–105) and Kutash (2011: 64 ff.).

[88] On number, World Soul, and individual soul, see Finamore, Kutash (2017: 129–134).

[89] See Cutino (2023: 135 ff.; 197–204).

[90] And it is precisely because, whereas the Intellect proceeds by collecting (συνῃρημένως), the soul by dividing (διῃρημένως) (see Procl. *in Euc.* 16, 15–16), that mathematical objects would undergo that multiplication, which, like Aristotle (see Arist. *Metaph.* 1.6.987b14–18), Proclus ultimately acknowledges, although he makes it derive from a new exegetical accommodation.

[91] See Procl. *Theol.Plat*. 4.34.101, 16–26.

[92] See Procl. *in Euc*. 24, 4–14. On this ethical aspect, which is an essential part of the exegesis of Platonic dialogues, see, e.g., Baltzly (2016).

[93] See, e.g., Procl. *in Euc*. 48, 9–12.

[94] See O'Meara (1989: 167).

In this perspective, knowledge of geometry and understanding the nature of the image of its objects become crucial. For it is true that geometry disposes in space and matter the soul's intellectual objects, but it is even truer that, without resorting to these ultimate images of the intelligible-intellectual levels, the embodied soul could not fully realize in itself the circle of procession and return.[95]

4. Some Conclusions

In Proclus' approach, the onto-theological foundation of numbers and figures ensures that the soul's mathematical activities are a necessary condition for its return to itself and, through this, to its roots. Is there a limit to mathematical theology? If the intelligible number precedes all divisions and is therefore unknowable by discursive reason,[96] we should conclude that the epistemological-theological function of intermediates stops at (intelligible-)intellectual realities.

Actually, it has already been mentioned that mathematics plays an ancillary role to dialectic.[97] An involvement of mathematics in those negative procedures by which discursive reason attempts to approach what transcends it can also be acknowledged. In this perspective, Proclean investigation of irrationals deserves to be thoroughly addressed. These *mysterious* numbers – the irrational number is defined as ἄρρητος[98] – which can be neither even nor odd lack the fundamental characteristics proper to intellectual numbers. Precisely for this reason, they might find space at those levels where discursive reason is forced to face its limits. Accordingly, investigating those mathematical categories through which dialectic – even negative dialectic – seeks to discursively circumscribe what transcends its domain could broaden the role that Proclus assigns to mathematical theology and confirm the extent to which mathematics becomes a fundamental tool in a theological system that does not renounce rationality, while highlighting its limitations.[99]

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[95] See again Cleary (2000: 88). These considerations could also support those who, drawing on *Parmenides* Commentary and *Platonic Theology*, sought evidence of a theurgical use of mathematics in Euclid Commentary and proposed viewing the theory of imagination presented here as a tool for an inner form of theurgy, offered to initiates in mathematics as a strategy for elevating the soul. See Goulding (2022).

[96] See Procl. *Theol.Plat*. 4.34.100, 2–8.

[97] See above, § 2.

[98] See, e.g., Procl. *in Euc*. 6, 21, where the term is applied to incommensurable magnitudes.

[99] See, e.g., Procl. *in Prm.* 7.1206, 1 ff., where the consequences arising from denying the One's participation in the Identical are investigated, thus depriving it of a measure and producing aporias similar to those of incommensurability.

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Proclus and the Intelligible-Intellectual Roots of Mathematical Theology

The purpose of my paper is to investigate some aspects of Proclus' foundation of the theological role of mathematics. In the first section, I briefly discuss the question of the foundation project of mathematics in Plato, as I believe it is also from the dialogues that Proclus derives the crucial status of mathematical entities in the ascent of the soul. In the second part, after presenting the four ways that Proclus recognizes as theological and pointing out that mathematics is made part of theology through images, I analyze in particular the theological power of two geometrical images, that of the divided line and that of the circle. Lastly, the third section firstly emphasizes that the theological status of mathematics finds its ontological validation in the Proclean theory of mathematical entities as intermediates. Then, it focuses on the intelligible-intellectual roots of the intermediates themselves, which ensure that the soul's ascent is surely directed toward the highest realities.

KEYWORDS

Proclus, Mathematical Theology, Images, Intermediates, Intellectual Number, Intelligible Number.