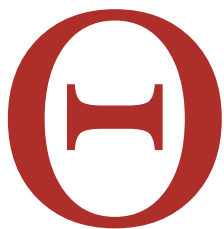


11 – 1, 2023

ISSN 2284-2918



Thaumàzein

Θαυμάζειν

RIVISTA DI FILOSOFIA

THE REAL AND THE KNOWN



***Thaumàzein* – Rivista di Filosofia**

ISSN: 2284-2918

Thaumàzein is an open-access journal of philosophy and uses **double-blind peer review** in order to ensure and to improve the quality of philosophical discussion. *Thaumàzein* promotes special issues on topics of particular relevance in the philosophical debates. Founded in 2012, it is an international journal of biannual publication.

DOI® NUMBER

Each paper published in *Thaumàzein* is assigned a DOI® number.

Scientific Magazine classified for ANVUR

Indexed in ERIH PLUS

Cover image: Photo Hisham Zayadneh on Pexels

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Thaumàzein — Volume 11, Issue 1, 2023

The Real and the Known

Edited by
Silvia De Bianchi
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SPECIAL ISSUE

THE REAL AND THE KNOWN

SILVIA DE BIANCHI & LORENZO GIOVANNETTI

INTRODUCTION

EXPLORING THE DYNAMICS BETWEEN ONTOLOGY AND EPISTEMOLOGY

TABLE OF CONTENTS: *1. Exploring fundamental questions: the real and the known in ancient and modern thought; 2. Tracing conceptual boundaries: Plato and Kant on the tension between the real and the known; 2.1. Plato: the cohesion between the real and the known; 2.2. Kant: a rupture between the real and the known?; 3. The Real and the Known: Contributions on ancient and early modern philosophers; 4. Open questions and future perspectives.*

1. Exploring fundamental questions: the real and the known in ancient and modern thought

The present issue arises from the need of fostering the existing debate and the reflection upon the limits of our current theory of knowledge and ontology, or if the reader allows, upon the limits of the subject/object dichotomy that still pervades philosophical investigation. Any analysis concerning the roots of the reflection upon knowledge, its meaning and purposes throughout history, inevitably implies neglecting a variety of significantly distinct approaches, whose extension and depth cannot be covered in a small number of pages. For instance, recent works have reconstructed and underlined original aspects of ancient philosophy and schools and did so mostly in the field of epistemology and ontology.¹ More modestly, this special issue sheds light on the modification of the debate surrounding the interrelation between ontology and epistemology arising from specific answers to the

¹ See for instance Chiaradonna, Forcignanò, and Trabattoni 2018, Hetherington and Smith 2019. Cf. also Giovannetti 2021 and *Synthesis. Journal for Philosophy*, Issue 3: *Ancient Philosophy in Dialogue*, forthcoming.

questions “what is knowledge?” and “what there is?” in order to explore their full or partial capacity of grasping what is identified as “real”. The present issue includes contributions about authors pertaining to very different periods in both ancient and early modern times and pursues the task of making the reader aware of possible new interpretations of the relationship between ontology and epistemology. The assumption underlying the present issue is that at some stages of its long history, the theory of knowledge has met with crucial turning points, at which its features were either responsible for a significant change in ontology or in some cases were experiencing an overlap with ontological features (see Section 2.1 below).

In this issue, we identify turning points that can be found in both ancient and early modern philosophy, thereby revealing unexpected potentialities to develop original epistemological and ontological claims coming from ancient debates and in modern authors, e.g., Bruno, who created a fracture with the past.

Indeed, the nature of a theory of knowledge portrayed according to the object/subject dichotomy can be mainly explored by studying the extent to which some theories of knowledge rely on ontological views and the extent to which some theories of knowledge require the subject to work in some way which is partially or altogether independent of what there actually is.

However, this special issue sheds new light on the way in which ontology can be reshaped starting from a theory of knowledge and on the legacy of ancient philosophers for the early modern ones. Indeed, the view that in ancient philosophy one is faced only with object-dependent knowledge while the early modern tradition is exclusively concerned with subject-dependent knowledge is too simplistic and should be put into question. This means, among other things, to underline the co-presence of, and possibly the interrelation between the two approaches. Some hybrid theories regarding the nature of knowledge considered in this issue constitute the perfect sample of it (see Leigh’s contribution). Thus, our purpose is to highlight (i) new ways of understanding the influence of ancient philosophers on early modern ones and stimulate (ii) innovative insight into the relation between what is real and what is known.

2. *Tracing conceptual boundaries: Plato and Kant on the tension between the real and the known*

In order to outline how ancient and early modern thinkers can be compared and set in dialogue with respect to the main questions of this special issue, two *caveats* should be considered here. First, it is not our intention to offer a complete survey of the literature on ancient philosophers or modern philosophers with regard to the questions about reality, knowledge and their relation. We will rather focus on some influential studies addressing analogies and differences between these two groups of philosophers. Second, by no means we want to suggest that the many centuries of philosophical reflection dividing ancient and modern times are to be ignored or that they could not illuminate the investigation we are pursuing from a different perspective and with new arguments. We only present some new insights into how some central figures of early modern philosophy are influenced by, or mean to distinguish themselves from, ancient philosophers. This is also possible on the ground of the variety of methodologies deployed by the authors of the articles in this special issues, which range from a careful analysis of terminological and conceptual direct influences and/or differences between ancient and modern (see Chiaravalli, Montosa and Brancato), to an overall assessment of key distinguishing factors between ancient and modern ontologies (see Halper), to a systematic scrutiny of specific concepts or theories (e.g. innatism) as they are represented by modern debates on the basis of their ancient origin (see Shepardson), to a close analysis of some of Plato's works (see Leigh).

The present issue investigates ancient and modern views of ontology and knowledge following upon some illustrious examples and recent attempts at providing suitable tools through which one can navigate a rich material.² Considering the prominence of René Descartes in shaping a theory of knowledge and the role of mathematics, it is no surprise

² A classical study is Brochard 2001. Essential studies are Miller and Inwood 2003, Kennington 2004, Williams 2006, especially chapter one, and the collected volumes by Burnyeat, which are significantly titled *Explorations in Ancient and Modern Philosophy*, 2012a, 2012b, 2022a and 2022b. As we will see shortly, section 2 of Burnyeat 2012a is particularly relevant. Cf. also Berchman 2007, Gersh and Moran 2006 and Giovannetti 2020a.

that important contributions have already highlighted the interrelations and differences about ancient and modern scepticism, on the one hand, and the influence of Platonism, on the other.³ It is worth mentioning Burnyeat's *Idealism and Greek philosophy: what Descartes saw and Berkeley missed*,⁴ as a seminal paper in this respect. In Burnyeat's view, Greek philosophical reflections on knowledge and reality shape the object of thought as irreducible to the activity of the minds.⁵ This implies that there is no problem of demonstrating the existence of the external world and that thinking needs to have an object which is in some way independent of the mind.⁶ Accordingly, Burnyeat contends, ancient sceptics never really questioned the existence of the external world and it is in fact Descartes the first one to assign subjective knowledge, i.e. knowledge of subjective states a central role in epistemology. This view attracted some criticism,⁷ but has been very influential in shaping the debate concerning the distinctive features of modern views with regard to the ontological commitments of knowledge. The notion of coalescence between reality and truth, or between reality and thought, has been seen as a fundamental aspect of the philosophical reflection opened by the Presocratics.⁸ However, a notion of strict coalescence is not able to

³ To name but a few, on scepticism see Curley 1978, Popkin 1979, Paganini 2008, Machuca 2011. On Platonism see Koyré 1964, Corrigan and Turner 2007, Hedley and Hutton 2008, Chiaradonna 2012. On ancient and modern mathematics, see Lachterman 1989. It is also worth mentioning in passing Augustinian antecedents of Descartes, see the classical study Gilson 1930 and the more recent Menn 1998.

⁴ Burnyeat 1982, reprinted in Burnyeat 2012a.

⁵ As shown by Burnyeat, against Berkeley's own reading of the *Theaetetus*.

⁶ We say "in some way" because one needs to take this independence of the object of thought as the fact that it exists and is what it is regardless of its being thought. This does not exclude that this object being intelligible might qualify as one of its essential traits.

⁷ Most critiques focus on individual thinkers or passages, to whom Burnyeat's argument should not apply, for instance Sorabji 1983, Emilsson 1996, Fine 2003, Politis 2006. For a broader view alternative to Burnyeat's construal of ancient scepticism and its relation to anti-realism, cf. Groarke 1990.

⁸ The notion of coalescence with regard to the Presocratic thinkers was first spelt out by Calogero 2012. For a survey of the debate surrounding Parmenides' claim about the identity of thought and being, see Fronterotta 2007 and Di Iulio 2020. On the double nature of truth in Plato, cf. Szaif 1998 and as summary Szaif 2018. Cf. also

adequately make sense of Plato's view. Accordingly, in contrast with the notion of coalescence, we deploy the notions of cohesion⁹ for Plato and rupture for Kant, in order to portray a fundamental tension in Western thought regarding the dynamics between ontology and epistemology.

Indeed, the contributions of this special issue analyse subjects ranging from Plato to Kant because both might be taken to represent two significantly different theoretical stances. As far as Plato is concerned, one sees a dynamics of cohesion between what is real and what is known. In other words, either one grasps what reality is in itself or one is not knowing in a strong sense. By contrast, in Kant's critical philosophy there can only be knowledge of phenomena, which are other than things in themselves. Thus, with Kant's critical work, one witnesses a disruptive dynamic between the real and the known.¹⁰ Furthermore, Kant represents one extreme case in which *a priori* forms for the possibility of knowledge corresponds to the portion of reality, i.e. an island of truth (*KrV* B, 294-95) that can be reliably explored by human beings.¹¹ Between these two philosophical pillars, the special issue focuses on the connection between ancient and early modern thinkers. Before turning to a brief exposition of the contributions, we

Perl 2014 and Fronterotta 2022.

⁹ It is worth specifying that the term "cohesion" should be interpreted as meaning the maximum degree of connection between being or reality and cognition, without the two dimensions coming to be the same (as is the case with "coalescence"). For a preliminary discussion of this issue and an extended treatment of how being, thought and language intertwine in Plato's view, see Giovannetti 2022.

¹⁰ This rupture is clearly described for instance in Waxman 2014, Lu-Adler 2018, Abaci 2019, Kraus 2020 and Friebe 2022. Several works highlighted the continuity between Kant and previous philosophers and systems. Recent works for instance include De Boer 2020 and Tommasi 2022 with respect to Wolffian metaphysics and Aristotelianism, respectively, however it is extremely hard to deny that Kant's transcendental philosophy as a system represents a novelty and rupture with previous positions in portraying the relationship between ontology and epistemology, especially considering what Kant clearly states in the *Prolegomena* regarding the task of accomplishing the revolution in metaphysics started with Hume. For the impact of Kant's revolutionary position regarding ontology and epistemology on Schelling and Hegel, cf. Illetterati and Gambarotto 2020.

¹¹ For a detailed analysis regarding language and ontology in Kant, cf. La Rocca 1999.

need to very briefly expand our discussion of the state of the art upon the two thinkers that set the chronological and theoretical boundaries of the present investigation.

2.1. *Plato: the cohesion between the real and the known*

Theoretical and ethical investigations and objectives are irretrievably entwined in Plato's work, mirroring the fact that boundaries across disciplines were not clearly drawn at that time. However, Plato's conception both of a worth-living life and of the just political system hinges on the concept of knowledge. The best life, which is also the happiest, is conditioned upon possessing or at least pursuing wisdom, and the just and orderly city can only exist if philosophers become rulers (cf. for instance *Resp.* VII, 540a-541b). Knowledge and authority spreading from them is the only warrant for a correct exercise of power (cf. for instance *Resp.* V, 473d-e). What we tend to translate with "knowledge" in Plato's vocabulary amounts to a variety of nouns and verbs, which unfolds over decades of philosophical reflection and centuries of collective linguistic practice. Among these terms, *episteme* is likely the most representative, in association with dialectic, i.e. the philosopher's art through which one knows being. Defining the notion of *episteme* is definitely no easy matter. Plato studies are far from reaching consensus and, even though most of them agree that *episteme* is infallible,¹² several different and often incompatible accounts have been provided.¹³ This also results from Plato's own compositional style and from his long-period writing extending over decades. Nevertheless, two things can be gathered with certainty from Plato's texts. Firstly, everyday objects of experience are not the fundamental layer of reality, and these objects derive their transient and qualified being from other intelligible entities. The latter are uniquely or primarily what (there) is in a proper sense. Secondly, *episteme* as knowledge has some sort of exclusive or privileged relation to such entities.

¹² Though not all, cf. Broadie 2021.

¹³ It is not possible even to survey the main studies or stances within the scholarly discussion; thus, we will limit ourselves to mentioning some very impactful and representative studies.

From these assumptions all sorts of interpretations have been suggested. For the purpose of our issue, it is worth mentioning that on the ground of Eleatic tenets, especially Parmenides, Plato portrayed a big and complex picture of how philosophical reflection about knowledge is grounded in ontology. The ‘known’ (*to gnoston*) is first conceptualised with regard to the ‘real’ (*to on*). This does not amount to the truism that to know that p , p must be true, and therefore p is a fact. Plato’s view amounts to stating that one can know an entity or portion of reality thanks to this entity’s characters such as unity, immutability, clarity, intelligibility, and the like. However, troubles begin when Plato seems to exclude any overlap between the object of knowledge, i.e. Forms, and the object of belief, i.e. sensible things (*Resp.* V, 476ff.). This fostered an exegetical branch, including, just to name but a few significant interpreters, Vlastos [1973], Szaif [1998], Fronterotta [2001], and most recently Moss [2021].¹⁴ Fine [1978] and [1990], who claims one can have knowledge of becoming things and belief about Forms, is opposed to the traditional view.¹⁵ This debate also intersects with another problem: when describing knowledge, Plato oscillates between the metaphorical discourse of seeing or grasping being and providing an account of it by formulating judgements and definitions. Both approaches can be easily found in the central books of the *Republic* (V-VII),¹⁶ but also in the final pages of the *Meno*, where we are told that, through reckoning about the cause or the explanation, we find something that ties down belief and turns it into *episteme*. Or yet again, in later dialogues, such as the *Sophist*, dialectic qua specific technique of the philosopher could be associated with specific methods describing and defining the object of enquiry. Finally, in the *Theaetetus*, the objective of the dialogue consists in defining what *episteme* is, but there is no mention of Forms in it and the dialogue ends in *aporia*. From all this, entirely different readings have been advanced. For instance, the *Theaetetus* is interpreted as a dialogue showing that without Forms one cannot define knowledge,

¹⁴ For a survey and discussion, see Giovannetti 2020b.

¹⁵ This view is criticised by many, consider for instance Gonzalez 1998. For an interesting attempt to go beyond this opposition, cf. Smith 2019.

¹⁶ This question has drawn particular attention by Italian scholars, cf. Aronadio 2006, Ferrari 2006 and Fronterotta 2006.

or that Plato is abandoning the theory of Forms altogether.¹⁷ Were this the case, we would then be faced with a Platonic view on knowledge that parts with ontology and goes towards a more “epistemological” approach that tries to find knowledge’s ultimate source in its procedures rather than in the nature of its objects.¹⁸

What we have roughly sketched here does not cover all questions about knowledge arising from Plato’s texts, nor is it dealing with these questions the objective of this special issue. However, the debates over knowledge and reality, as well as their relationship, certainly motivated the guideline to be explored in the present issue to compare ancient and modern views. We can already find in Plato a variety of approaches that exhibits a relentless reflection of a philosophically piercing mind and then makes it explicit that Plato undoubtedly cognises knowledge as essentially related to ontology, but at the same time allows a pluralistic approach to what knowing means and implies or at least suggests the investigation of possible patterns or epistemological stances with respect to this question. In this special issue, the reader will find some investigations into specific questions regarding the multifaceted approach to knowledge we already find in Plato (despite him leaning very strongly towards the influence of ontology over knowledge) and other central topics coming from antiquity and influencing early modern philosophers. Thus, in the present issue Plato represents one end of the line, the other end being symbolically occupied by Immanuel Kant, who acknowledged the impact of Plato throughout centuries, but also tried to shape in a new fashion the relationship between ‘the real’ and the ‘known’ opening an entire new field of ontological meaning pertaining to transcendental philosophy.

2.2. Kant: a rupture between the real and the known?

Our special issue therefore considers comparative studies and/or the legacy of concepts, motives or debates generated in the ancient world in the early modern period up to Kant. We deliberately decided to

¹⁷ For a detailed state of the art of the classical studies, cf. Chappell 2006.

¹⁸ Even getting close to a coherence theory of knowledge, such as Fine 2004.

avoid a detailed discussion of Kant's critical philosophy in this issue both for the length that this would require and for the systematic reason that Kant explicitly talked about a history of pure reason. He was the first philosopher to offer a system that explicitly set itself beyond former ontological and epistemological positions and used this fact to substantiate the modern notion of the history of ideas. Thus, Kant's philosophy entertains a deeply complex relationship with ancient philosophy *and* with early modern philosophy. This relationship can only be grasped thanks to a multi-layered system of readings. At first, one can include the study of Kant's criticism of ancient and modern positions; a second level of reading however is rather meant to see how Kant reinterpreted philosophical concepts taken from ancient and late antiquity to rephrase his transcendental philosophy; a third level of analysis should consider how Kant and early Kantians understood ancient philosophy and its concepts, as 'moments' in the development of the history of pure reason.

From a Kantian perspective, thus, the historical approach can highlight both aspects of continuity and discontinuity between the ancient and the modern world, but it assumes that the standpoint of transcendental philosophy is more advanced than the previous ones.

Therefore, in the critical period, Kant's reading of ancient philosophers is inevitably biased and forced to fit with the idea that human reason progresses towards the enlargement of our knowledge and through a priori principles of reason for its regulative use.

Aside from this premise, let us notice that Kant had an intense and positive relationship with classics. Plato, Aristotle, Cicero, Epicurus, among the most important ones inspired the construction of the concepts needed to overcome (from a Kantian perspective) the ontology and the epistemology of Descartes, Leibniz, Newton, Hume and Wolff, by offering a new definition and function to the notions of "ideas", "dialectic", "categories", "noumenon", "schema", "hypotyposis", "law" and so forth. Even if Kant underscored the rejection and limits of Platonism (cf. Hinske [1988])¹⁹, he also believed that Plato's thought represented a first milestone in the development of the history of pure

¹⁹ For a recent reconstruction about Kant's view of Platonism and *Schwärmerei*, cf. De Bianchi 2021; 2022.

reason towards the teleological interpretation of Forms.²⁰ In other words, without ancient philosophers, and Plato in particular, no modern system, including transcendental philosophy, could have produced a history of its a priori principles, as Kant claimed in *Über eine Entdeckung nach der alle neue Kritik der reinen Vernunft durch eine ältere entbehrlich gemacht werden soll* dated 1790.

So far, we sketched Kant's public take on Plato's philosophy, but another story is to assess his debt to ancient ideas. At present, there is still a lack of studies that properly enable one to grasp the complexity of Kant's take on the philosophy of Plato and Aristotle as previous steps in the history of pure reason and this is certainly an important desideratum that the literature should fulfil with respect to peculiar aspects of Kant's system. We refer to the assumption denoting Kant's ontology, according to which what possesses reality (*Realität*) is not necessarily what possesses existence (*Existenz*)²¹ and that "to know" (*erkennen*) is not just "to think" (*denken*), which in turn is not the same as "to grasp" (*begreifen*), which is rather the pre-eminent way in which reason formally acts. The fact that the intelligible functions of thought and cognition are separated with a hiatus from the sensibility is not just mirroring Kant's system of faculties (sensible intuition, understanding, reason, imagination and so forth), or just the result of the idea that there are no ready-made phenomena that can be known a priori. Kant's ontology and theory of knowledge are incommensurable (in Kuhnian terms) with previous systems both for the new foundations of logic and for the doctrine of transcendental idealism of space and time. Therefore, Kant gave a clear account of the legacy and limits of both ancient philosophy and early modern philosophy in the light of these two tenets of his system. On the one hand, he provided philosophy with the secure ground of a pure a priori science, i.e. general logic and underscored the great limit of including space and time as categories of a fundamental ontology with a related logical form/content. For the sake of brevity, as the careful reader of this issue will notice, none of the contributions deal with authors that would subscribe to the above-mentioned tenets

²⁰ Cf. White 1993 and Serck-Hanssen and Emilsson 2004.

²¹ For studies on Kant's view of existence, cf. Stang 2015, and for recent contributions, cf. Rosefeldt 2020.

of Kant's system. In other words, in Kant's system the foundations of knowledge and ontology are unique with respect to his predecessors. Nevertheless, this rupture with the past is just one side of the coin, as just as Kant would like to hear, because his system is the result of the continuity that reason follows in its evolution of a priori forms to grasp its own intelligent nature oriented towards ends. Thus, we suggest that a possible way to effectively portray the discontinuity between Kant and previous philosophers and philosophical systems is to stress that the real and the known are categories reshaped thanks to the operation that makes Kant one of the most original logicians in history: to get rid of any spatiotemporal frame in logic.²² The huge change in defining knowledge that his system bears with it is just a mere consequence of having denied any direct correspondence or one-to-one mapping between the real in perception and phenomena, but foremost in having concluded that the difference between thinking and knowing relies on the fact that formal logic has nothing to do with any spatiotemporal notion, which rather pertain to sensible intuition. The latter alone, however, is blind if it is not guided by pure forms that makes spatiotemporal relations intelligible. Furthermore, there cannot be knowledge in strong sense of space, time, and pure forms of thought, but just a classification and exposition, and the same holds for the a priori principles of reason. Human beings can define and classify sensible and intelligible forms and more importantly they must *use* them in the appropriate manner, avoiding errors and subreptions. Being these forms the subject matter of transcendental philosophy, e.g. conditions of the possible experience, we can infer that Kant abandons once and for all the metaphysical account of ontology as the science of Being *qua* Being, disclosing the path for transcendental philosophy and epistemology as more secure and prolific. This path consisted in reshaping the notions of the real and the known in such a way that phenomena or objects of mathematical construction that are known must be real in so far as the synthetic a priori judgment about them presuppose acts of the mind unifying through the schema of the category of reality the manifold of and in intuition.²³ However, none

²² For extensive studies of Kant's general logic, cf. Capozzi 2002 and Capozzi 2004. For a discussion of Kant's logic and ontology, cf. Tolley 2016.

²³ A very clear account is given by Paek 2005.

of the known objects is real *per se* or as thing in itself. This in turn can be read as Kant's solution to the problem of an alleged dichotomy between subject and independent external objects, since there is no such distinction in the act of knowledge. In order to appreciate this huge change of paradigm in the history of philosophy, we will now critically review the content of this special issue.

3. *The Real and the Known: Contributions on ancient and early modern philosophers*

The first essay by Edward Halper titled *On the principles of reality* offers a far-reaching study focused on the notions of being and knowability, contrasting the ancient mind-set as is represented by Aristotle and inherited by Aquinas with early modern philosophers. This study surveys many thinkers and complex issues and provides a synoptic view which, irrespective of the many details, represents an innovative and at times controversial framework for our main question. Halper starts with Aristotle's view according to which to know something one needs to understand its cause or principle and at the same time the latter are viewed by Aristotle as beings of some sort, i.e. an existing entity in the world. In focusing on sensible substances, Halper reports Aristotle's view that form is very often what provides the formal, the efficient and the final cause and, to this, the matter (material cause) must be added. Thus, the cause or principle of sensible substances is their form and matter; from this, Halper draws the conclusion that «a sensible *ousia* is not just an independent, self-subsistent being. It is a unit of knowing. In other words, an individual *ousia* is known through its own essential nature; that is, through its form and through the matter in which that form resides» (p. 38).

This claim seems to be at odds with Z 15, where Aristotle clearly states that one only has knowledge of the universal and never of the individual. To deal with this objection, Halper claims that individual substances are known through formulae as they are expressed by language, which however are common by many instances, which makes them universal. This is said to be due to the nature of language. Thus, a question arises: should it not be excluded that individual substances are

the basic units of knowledge? It should not, insofar as, Halper suggests, Aristotelian universals are not to be conceived of collectively, but rather distributively. In other words, to know a universal means knowing an individual through a character that belongs to it and to all individuals of the same kind, i.e. its form. This is compatible with Aristotle saying (Z 13-17) that forms are not universals because they belong in a particular matter as what provides the unique principle of the functioning together of its parts: «Insofar as the form is the *functioning* of a particular matter, it not only unifies the organs, but also makes them into a *single*, composite individual. A matter that has the first actuality, that is, the form, is an individual. To be sure, we know a form's nature through a universal formula, and this formula characterizes the forms of all the like instances of the species. However, the form cannot *be* a universal because it is the functioning of some particular matter and, thereby, constitutes that matter as a particular individual» (p. 40). The conclusion to be drawn, for Halper, is then that individuals are the basic units of being and knowability insofar as they exist separately and they are known through themselves (i.e. through their forms qua non-universals).

Given this picture, some problems arise when it comes to accommodating relations between substances. This is because relations are not substances and thus cannot exist without substances. Indeed, Aristotle thinks of relations as located in substances: a single *ousia* contains a relation to another *ousia* and the latter contains within itself another relation to the former. Before turning to modern philosophers, Halper briefly mentions the interesting case of Aquinas, who tried to save the Aristotelian picture by providing – at least in his view – a more robust account of the relations linking substances, where the cosmos is made unitary by being produced, preserved and governed by God, who is each being's efficient, formal and final cause.

In contrast with Aristotle's view, «instead of individual, self-subsistent *ousiai*, modern philosophers talk about mathematical laws of nature that express relations between characters; specifically, between characters that are themselves defined through these relations» (p. 45). In other words, relations are the basic units of being and knowledge. This, Halper maintains, brings about the problem of locating such units, i.e. relations understood as expressions of the laws of nature, and is

what motivates the emergence of many debates in modern philosophy. Accordingly, Halper surveys the major early modern thinkers through the lenses of his interpretation: he shows that the great variety of theoretical options put forward by modern thinkers can be seen as aiming to answer the same question concerning the existence of relations as basic units of being and knowledge. Thus, he provides an interesting framework for the question of the relation between reality and knowledge in sharp contrast with Aristotelian metaphysics.

In her *The Wolf and the Dog: eristic, elenchus, and kinds of wisdom in Plato's Euthydemus*, Fiona Leigh provides a very clear case study concerning Plato's reflection upon epistemic procedures, not immediately related to matters in ontology (though ultimately not incompatible with the view that an analysis of knowledge calls for some sort of ontological theory of known object). Leigh's goal is to assess the difference between two opposite stances: eristic and elenctic discourse. These two types of discourse are quite generally treated in the *Sophist*, where the former is associated with the sophistic art of creating verbal appearances and of producing contradictions and the latter with a particular characterisation of sophistry as cleansing of the soul, which is clearly attributed to Socrates. These two conversational techniques are metaphorically embodied by the wolf and the dog, respectively. The main similarity between the two is that they both lead the interlocutor to contradiction, while their difference is that the eristic method is destructive, whereas the elenctic method is constructive. This is so mostly because the elenctic method makes some tacit belief of the interlocutor explicit and «it is not infrequently one of these tacit beliefs that contradicts a belief the interlocutor has previously avowed, in strong terms, on the subject of investigation. Thus, the interlocutor is brought to see that and how he holds contradictory beliefs on that subject, and so is ignorant with respect to it» (p. 65). This allows the interlocutor to assess what she knows and the limits of her knowledge, and in this way the elenctic method facilitates a kind of self-knowledge. Leigh then turns to the *Euthydemus*, where these two stances are extensively portrayed. For instance, in the case of the eristic discourse, Clinias is led to admit that he has contradicted himself as he believes that the ignorant are those who learn and the wise are those who learn

at the same time. Leigh's take on this is that since Euthydemus and Dionysodorus, the eristic brothers, dropped all sort of qualification to the above statement regarding the subject of wisdom, Clinias is led to think that his statements are in contradiction, when in fact they are not (if properly qualified, e.g. if "learning" means acquiring knowledge, the ignorant learn, if "learning" means being diligent and interested in carrying out enquiries, then the wise learn). The outcome of this is that the interlocutor ends up being confused and at the farthest end of being aware of what is going on in her mind. By contrast, Socrates protreptic interactions with Clinias are considered by Leigh, against most of the critical literature, to be genuine instances of the elenctic method. Leigh's major exegetical proposition deploys the notion of tacit belief. Socrates prompts Clinias to avow beliefs he is committed to, though unaware of holding them, when addressing the question of well-being and its relation to good fortune. In her detailed analysis of this exchange, Leigh draws a distinction, which is key to her argument: the distinction between ordinary tacit belief and elenctic tacit belief. The former is a type of belief one has not overtly avowed, but which is assented to easily and straightforwardly and is not required any degree of reflection such that it must be figured out or learned. Unlike ordinary ones, elenctic tacit belief are beliefs one is already committed to without knowing it and without being able to immediately recognise it. Socrates is able, thanks to his elenctic method, to first make explicit ordinary tacit belief and through logical implication and commitment to conversational norms elicit the interlocutor's awareness of other beliefs she is committed to, which could not easily be found outside a genuine dialogical investigation. In this way, Socrates fosters his interlocutor's self-knowledge, and in particular the epistemic awareness of one's commitment to a series of beliefs that are difficult to retrieve and that require a significant amount of reflection. To conclude, we wish to spend few words in relation to the purposes of *The Real and the Known*. This essay provides a fine reading of a passage from Plato, where one can find at work some epistemological reflections, aiming at reflective self-knowledge on one's beliefs, without any reference to ontology. At the same time, such knowledge focuses on the cognitive activity of a subject entertaining a belief and is not the ultimate knowledge about a what-is

question or independently existing beings. This provides a very good example of the fact that if it is true one can find in Plato sophisticated enactments of epistemic procedures without any reference to ontology, at the same time, this does not exhaustively define what knowledge is and how it works. In other words, there is autonomy of epistemological reflections to a significant degree without ever suggesting this suffices to understand what knowledge is.

The third essay, titled *Varieties of Platonic innatism: an introduction through early modern parallels*, by Douglas A. Shepardson focuses on Plato's innatism. His main objective is to clarify the conceptual space of different types of innatism, where a variety of interpretive options offered by the scholars have a parallel in early modern discussions. The author focuses on the ways one can frame innatism leaving open the question regarding what innate items are being recollected. Shepardson moves from a type of innatism that is introduced and criticised by Locke, which is labelled "explicit content innatism". The general view is that from birth on one has some content, in the form of propositions or principles, fully and openly available to one's belief or knowledge (depending on how the view is specified). In other words, this type of innatism is the view that the mind has immediate contemplation and awareness of some content upon birth. This type of innatism is not compatible with what one can easily gather from Plato's texts and is introduced for the sake of comparison with the other types of innatism. The second type of innatism is called "dispositional innatism" and is associated with Descartes (at least some of his texts, as he does not seem to be entirely consistent on the issue). This type of innatism denies that there is any actual content at birth and maintains that the mind has the capacity to work out such content by itself. This denial is not so much of content being explicit as of the actual existence of that content. In other words, innate content is not an entity and thus is not distinct from the faculty of thinking. The way one can distinguish dispositional innatism from common empiricism is by emphasising that the faculty of thinking, though not dealing with pre-existing content, plays an essential role in shaping it in a determined way. The third type of innatism is called "latent content innatism" and is associated with Leibniz (or again, in some of his works). This is the view that there is a

content that is innate but not available or accessible at birth and possibly for one's entire life. There are some truths in one's mind, only waiting to be found. According to Shepardson, along with some other scholars, this is what best captures Plato's theory of recollection in the *Meno*, the *Phaedo* and the *Phaedrus*, specifying that the content being recollected is of special objects such as Platonic Forms.

Then Shepardson turns to what he calls "constructivist nativism" as inspired by Immanuel Kant. Plato's innatism is conceived of as working like Kantian categories: it is not possible to have an experience of a given portion of the world without innate concepts. In other words, innate concepts are required to structure experience. Of course, this view is not Kant's, who strongly denied in all his corpus that ideas and categories are innate, but Shepardson rather tries to find a further possible reading of Plato's Forms as conditions. A fifth type of innatism is called "transcendent innatism" and is somehow similar to some core ideas of Malebranche. Retrieving innate content is like connecting with another transcendent realm for at least some types of thoughts, i.e. those dealing with Forms. On this reading, one is not just recollecting some latent content *concerning* Forms, rather one is exerting the innate capacity to access Forms, residing in a transcendent domain. The sixth and last type of innatism is called "condition innatism" and is associated with some Plato scholars, most notably Gail Fine. The way one has to differentiate condition innatism from latent content innatism is that along with content Plato is alleged to consider propositional attitudes as innately determined. Shepardson offers some counter-arguments and concludes that this last type of innatism is not a live option in making sense of Platonic innatism.

In *The irony of essence: Proclus and Descartes on geometry*, Iacopo Chiaravalli presents the key ideas underlying Descartes' view on the ontology of mathematics and geometry. While acknowledging the essential role the Platonic tradition played in the new philosophical and scientific developments of the seventeenth century, Chiaravalli's objective is to highlight what is specific to Descartes's treatment of mathematical entities, despite some terminological similarities to Proclus. In Proclus' reflection on mathematics, we find the distinction between *theoremata* (i.e. what can be shown about a mathematical entity,

namely the belonging of a property to a certain object) and *problema* (all those procedures which produce or deal with a certain figure). Chiaravalli's reading of this distinction in Proclus comes down to the idea that there are two different ways to represent a mathematical entity as is grasped by intellect: on the one hand, there is the *logos* or *horos*, i.e. the definition; on the other hand, there is what is produced by the *phantasia*, i.e. imagination, which however produces the sense-like mental figure of the intelligible mathematical entity. The definition sets the boundaries for the imagination to produce the figure, and both derive their being, more or less immediately, from the external, intelligible entity grasped by *nous*.

By contrast, in Chiaravalli's reconstruction of Descartes philosophy of mathematics, there is no such thing as an external mathematical object, and mathematical objects are thought of as the outcome of a process of discovering the proper solution to a problem. In other words, the nature of mathematical objects is determined in relation to the method of their production, i.e. an equation. Chiaravalli argues that in Descartes' geometrical calculus one must resist the temptation of taking the equation as an essence and the curve as a particular. By contrast, the curve represents all the possible results of the equation, thereby giving shape to the algebraic complex itself, which of course marks a radical difference within the notion of imagination when compared to Proclus', insofar as the imagination ends up having its own generality. In addition, in Descartes' view the mathematical object ultimately comes to be the same as all the operational possibilities the mind has in dealing with it. This is precisely what makes the equation the expression of the geometrical figure and vice versa: both amount to the same operational procedures. This shows that the distance between Proclus as eminent representative of ancient philosophy of mathematics and Descartes is enormous and that the latter is employing a Platonic jargon in a decidedly non-Platonic way. In other words, as Chiaravalli concludes, Descartes' essence is only to be found within thinking, without any reference to external entities, in sharp contrast with the ancient notion of essence.

In *Upsetting an upside-down world: Bruno's reassessment of Aristotelian infinity*, Pablo Montosa focuses on Bruno's work *On the Infinite*, a dialogue presented by Bruno as an open refutation of the

Aristotelian finite cosmos. What Bruno mainly criticizes is Aristotle's rejection of the infinity of the universe. According to Montosa, Bruno believed that Aristotle motivated such rejection on the cognitive biases that lead to the assumption of moral universalism. On the ground of this claim, Montosa shows that contrary to the established interpretation of the dialogue, Bruno's critique of morality is not a consequence of his cosmological view but rather that the latter derives from the former. Thus, behind the controversy between Bruno and supporters of Aristotle about the existence or not of infinity lies a more profound dispute about the existence of absolute moral values; on the other hand, to show that, by tracing back the former controversy to the latter, Aristotle and Bruno's arguments become more apparent. Thus, contrary to Aristotle, who conceived of God as an unmoved mover that can only think himself as detached from a world populated by finite substances, Bruno identifies God with the only infinite substance, of which things are nothing more than its modes as immanent expressions of its infinite power. According to Bruno, Aristotle's first mistake lies in turning his perceptual limitations into an attribute of the universe: «it is asserted against all reason, that the universe must terminate exactly at the limit of our perceptive power» [Singer 1968, 299]. This erroneous assumption in turn depends on taking the relative immobility and centrality observed from our terrestrial horizon as essential attributes or properties of the Earth, thereby erecting a subjective centre of absolute rest, which can only have a place in a finite cosmos: «Once the end of the thread is found, the tangle is easily unravelled. For the difficulty proceeds from the method and from an unfitting hypothesis, namely, the weight and immobility of the Earth» (Singer 1968, 361). On the contrary, in Bruno's view, things as modes are the reverse of substance: they are in something else by means of which they are conceived.

Properties, in any case, supervene these things. However, adequately conceived, things will always be parts «in» the whole, not parts «of» the whole: «since being is indivisible and absolutely simple, because it is infinite, and is act in its fullness in the whole and in every part of it (in the same way we speak of parts in the infinite, but not of parts of the infinite), we cannot think in any way that the earth is a part of being, nor that the sun is part of substance, since the latter is indivisible» [Bruno 1998, 92].

Thus, Montosa concludes that if things are modes, and modes are always in something else in virtue of which they are conceived, then in Bruno's view things are intrinsically relations. But not relations which take place «in between» things, but which essentially constitute them, just as, for example, we can say that «husband» and «wife» do not exist as such before the relation «marriage». These constitutive relations are reduced to properties by removing one of the relata in such a way that a wife becomes a widow when the husband dies, and their former relationship becomes one of her properties. By investigating Bruno's "method" of reduction of polyadic predicates to monadic ones, Montosa suggests that this suppression and, in particular, negation understood as deprivation plays a fundamental role in the rejection of Aristotelian theory of knowledge and ontology.

In his contribution *Leibniz and the conciliarists on natural motion and the legacy of ancient philosophy*, Mattia Brancato develops an analysis of Leibniz's concept of natural motion thanks to which he portrays Leibniz's understanding of the relationship between the real and the known, i.e. between the supposed objectively true and universal field of natural science and the subjective one of knowledge. Brancato assumes that historiography has to get rid of the notion of syncretism in a derogative way, but rather should investigate Leibniz through the lens of conciliarists, just as Leibniz would call them and himself, stressing the fact that they are not philosophers imprisoned in an old way of thinking, but thinkers that reintroduced concepts dear to ancient philosophy in order to enrich the theory of knowledge in the face of the new scientific achievements of Copernicus, Galilei and Newton.

According to Leibniz, conciliarists conceived of natural motion as something which was not completely opposing mechanism, but something that must be thought of as a completion of an experience that is lacking something. For instance, in experiencing motion, one witnesses its true nature, but one can still learn something from its geometrical and mathematical exemplifications. This means that any reading attributing to what is known a mere subjective connotation does not hold in this case, and Brancato suggests that Leibniz shared this view with the conciliarists not only with regard to physics. Not by chance, when confronting the problem of false perceptions in the

Nouveaux Essais, it is the experience based on something real that grants the possibility of being deceived. According to Brancato, in ancient philosophy, the idea that even in the experience which is far from the truth we are somehow oriented towards it, because the experience of knowledge shares with the truth its ontological foundation, is connected with Aristotle's notion of *eikos*, especially when applied to physics. By reevaluating the influence of the conciliarists on Leibniz then one can also infer important consequences with respect to the impact of Leibniz on the young Kant. In Brancato's view, works such as Kant's *Monadologia physica* could be interpreted as attempts at making sense of Leibniz's compatibilist approach in physics. Therefore, in his view, Kant's mature criticism can be seen as a reaction to these failed attempts of his early years, which led towards a more drastic rupture with the past.

4. Open questions and future perspectives

Thanks to the studies collected in the present issue, we offer an overview of the dynamics of tension surrounding the reflections upon the real and the known in both minor authors and renowned philosophers, such as Plato, also by investigating what are considered 'minor' works (e.g. the *Euthydemus* in Leigh's contribution to this issue).

Thus, a preliminary, methodological result of this issue consists in showing that when it comes to foundational and complex questions, such as those about the relationship of ontology and theory of knowledge, the distinction between 'minor' and 'major' works, as well as the restricted literal interpretation of each of them (see Montosa's contribution for instance) are neither profitable nor suitable.

Second, this issue is unified by means of a conceptual tool, i.e. the notion of cohesion as opposed to that of rupture that is suitable to portray the tension between ontology and epistemology across Western culture. This conceptual tool offers a valuable enriched picture that can be further investigated by considering other case studies describing the dynamics to which the relationship between ontology and theory of knowledge undergoes in the modern age. Moreover, this tool allows us to define in more detail the role of the interpretation of ancient philosophy in early modern works and beyond.

This in turn opens the perspective of investigating in more specific terms the way in which Kant's philosophy constituted a rupture with past schemes. In other words, one can also assess with more clarity and in more detail which aspects of ancient thought Kant deployed and modified for his purposes to overcome what he called "dogmatic metaphysics". It seems indeed that only a deeper understanding of the grounding relation (or its denial) between the real and the known, between ontology and theory of knowledge, can effectively constitute a guideline to assess recursive or new patterns in the history of philosophy, and this issue represents a contribution to stimulate new interpretations and interrelations among suitable answers to never-ending questions.

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Acknowledgment

De Bianchi's research has received funding and support from the European Union's Horizon 2020 research and innovation programme under grant agreement n. 758145.

EDWARD C. HALPER

ON THE PRINCIPLES OF REALITY

There is an enormous difference in philosophical perspective between the ancients and medievals on the one hand and modern philosophers on the other, and of course this difference has been characterized in various ways. This paper proposes a new account of what the difference is by contrasting the types of principles that Aristotle and, briefly, Aquinas, offer with those of philosophers from the modern period. By comparing the difference, we will see a problem emerge. Appreciating it will help us understand some distinctive features of both periods. I will suggest that the problem remains unresolved.

To cover such an enormous sweep of philosophy in one brief paper may seem foolhardy, and perhaps it is. However, the details are so complex and controversial that focusing on them would obscure the bigger picture.¹ Likewise, on a subject as widely discussed as this one, readers could rightly expect extensive critical engagement with other accounts aimed at convincing them that still another discussion is necessary and that the new approach offers advantages. However, what I propose here, unfamiliar though it be, does not aim to undermine other accounts so much as to encompass them in a larger, more intelligible framework. A brief treatment like this one cannot convince, but it can introduce this new framework and something of its power.

¹ Much of the discussion of Aristotle here is based on my three volume study: Halper 2005, 2009, and forthcoming.

I

Aristotle claims in two passages that we know each thing (ἕκαστον) when we know its first cause (*Phys.* B.3.194b17-20; *Met.* A.3.983a25-26). In each passage, he goes on to expound his well-known doctrine of the four kinds of causes. For my purposes here, what is important about the causes is that they are beings of some sort: the bronze of the statue, the health someone walks to attain, the sculptor of the statue, the essential nature that is the form of a dog, and all the myriad of other examples. Evidently, to know something's cause is to know some being.

The term «principle» (αρχή) also signifies a cause and, thus, a being, but it is broader: «what is common to all principles is to be the first from which something is or becomes or comes to be known» (*Met.* Δ.1.1013a13-16). The most important principle of knowledge, the principle of non-contradiction (Γ.3.1005b11-21), is not a cause: since this principle extends to all beings, it cannot be a particular being (1005b5-11). However, the principle is not unconnected with beings, for Aristotle's central assumption in disputing those who deny the principle is the existence of an essential nature (4.1006b11-15; 8.1012b5-8). I have argued that the principle of non-contradiction is, as it were, an indirect way of affirming the existence of essential natures [Halper 1984]. This is important because in contemporary philosophy, the term “principle” has come to mean something like a deeply seated belief.² It may be a belief about ontology, but it need not *itself* have any sort of objective being. In contrast, when Aristotle speaks about a «cause», he refers to something that exists in the world, and the same is true when he speaks about a «principle» even though it is less obviously so. Since the principle is that through which something exists or is known, unless the principle were itself a being, nothing could be through it; and unless it itself were known, nothing could be known through it. To know the principle is to know *its* first cause. Besides determining which beings are the first principles of knowledge and being, the *Metaphysics* is also concerned to determine what it is to be a principle or a cause. Thus,

² Lewis 2013, 110, 114, speaks of principles of substitution and sameness and, elsewhere in his book, proposes a host of assumptions without considering what kind of being a principle is.

Aristotle asks many times which sort of being a principle is, whether for example it is a universal or a particular, separate or immanent (B.4.999a24-b24; Λ.1.1069a26-30). These are ways in which a being could be a principle and so possible answers to the question of what it means to be a principle. In each case, the principle is a being.

Thus, when Aristotle speaks about metaphysics's seeking the first principles and highest causes, he says that it is clear that they must belong to some nature *per se* (Γ.1.1003a26-28). Later, he makes clear that the inquiry is about the principles and causes of *ousiai* (Λ.1 esp. 1069a18-19, a25-25). He distinguishes three *ousiai* (1069a30-36) or, rather, three types of *ousia*. There is no doubt that one type, eternal and immobile *ousia*, is the nature that is the principle and cause of all else. The first principle and cause of all beings is some one being or one sort of being, an unmoved mover.

One problem for Aristotelian metaphysics is how all beings can be known through such a cause when the nature of the cause is itself unknown – for Aristotle proves its existence, discusses the sort of being it must be (a pure actuality, a thought that thinks itself), and links each unmoved mover to a heavenly sphere (Λ.6-9), but he does not indicate its nature. Indeed, he suggests that a human intellect could never know its nature.³ We need not dwell on this issue here.⁴ Suffice it to say that the natures of sensible *ousiai* are not known through the unmoved movers. These latter are responsible only for the persistence of sensible natures.

The natures of sensible *ousiai* must, then, be known somehow through themselves. Since we know by knowing the first cause, there must be causes, specifically first causes, that belong to sensible *ousiai*. How are they located in an *ousia*? This Aristotle expounds in an important chapter in the *Physics*, B.7. After briefly mentioning the four kinds – the matter, the form, the mover and that for the sake of which – he notes that the natural scientist should know them all, but that often three of them are one (198a21-25): for the formal and final causes are

³ «By partaking of what it thinks, the intellect thinks itself [...] so that the intellect and what it thinks are the same thing» (Λ.7.1072b19-21, Sachs transl.). For us to think the essential nature of this separate intellect, we would need to become the intellect, which, having bodies, we cannot do.

⁴ I discuss it in Halper, forthcoming.

one, and that from which the first motion comes is the same in form with these, for a human being is the cause of a human being (198a25-27). The fourth cause is the matter.

That is to say, the formal and final causes of a sensible *ousia* are simply the form of this *ousia*. Its efficient cause is the form of another *ousia*, its parent; but this form is the same as the form that exists in the *ousia* itself. The material cause of this *ousia* is simply the *ousia*'s matter. It follows that, with one qualification, all the causes of any natural *ousia* are its very own form and matter. The qualification is, again, that the efficient cause of the *ousia* lies in another *ousia*; but since it is the same as the form that is *within* the *ousia*, this latter *ousia* can be known through itself. Consequently, a sensible *ousia* is not just an independent, self-subsistent being. It is a unit of knowing. In other words, an individual *ousia* is known through its own essential nature; that is, through its form and through the matter in which that form resides.

This conclusion, that a sensible *ousia* is known through itself, seems to fly in the face of widely-known Aristotelian doctrine. In *Metaphysics* Z 15, Aristotle argues that an individual cannot be known. Rather, knowledge is of the universal (B.6.1003a14-15; K.1.1059b25-26). Countering this objection requires making more precise just how an individual *ousia* can be known. So, the objection proves useful support for my claim. Still, we might wonder why my contention seems so contrary to the received view. I can only speculate, but I suspect that Aristotle intends his denial that an individual can be known and his affirmation that the universal is the object of knowledge precisely for the purpose I will use them; namely, to delimit the way in which an individual can be known. His emphasis on knowing individuals is so pervasive that it does not need to be asserted; it needs to be refined.

Z.15 argues that an individual cannot be known because it comes to be and passes away (1039b20-1040a7; cf. B.2.997b32-34). Since knowledge is always true, its object must be something that always persists. A perishable individual can be or not be. So, no definition or demonstration about it will always be true.⁵ This argument seems to contradict the claim in H.2 that those who define a house mention

⁵ Hintikka 1973, 64, 68, 72-75, claims that this argument is rooted in the Greeks' use of temporally indefinite statements to make knowledge claims.

either (1) the matter, (2) the actuality or form of the matter, or (3) both (1043a14-21). It would seem that an individual house can be defined and, thus, known and that even its matter can be known.

The contradiction is only apparent. The individual that cannot be defined is the individual that is generated and destroyed, but the formula of such an individual is neither generated nor destroyed (1039b20-26). It is this formula or, rather, formulae that H.2 discusses. The individual can be known through any of its three formulae. They all express characters that the individual shares with all others of the same kind. Due to the nature of language, any formula could have multiple instances. Hence, what is expressed through a formula is universal, and knowledge is of the universal. On the other hand, what is really distinctive about this individual, the particular matter to which its form belongs, is not known. Its *kind* of matter as well as its kind of form are knowable through universal formulae, but the particular boards, bricks, and other constituents of a particular house do not belong to its definition.

Someone might object that if the house is known through a universal, it is wrong to say that the individual is the basic unit of being and of knowledge. This objection misunderstands the nature of an Aristotelian universal. It is, as we might say, distributive rather than collective: a universal belongs to each individual, rather than to all as a totality. It exists as a potential part of each individual that comes under it (M.10.1087a10-25). To say, then, that the universal is known is to say that each individual is known through a character that belongs to it and, somehow, to everything else of the same kind. Each house is known through its form and its matter, even if all houses have the same form and the same sorts of matter. So, to know a universal is perfectly compatible with my claim here that the individual is the basic unit of being and knowability.

Is the form of an *ousia*, then, a universal? It is known universally because it is known through an essential form that is expressed in words and, therefore, like all verbal formulae, can belong to more than one instance. However, Aristotle argues at length that the form is not a universal (Z.13-16). A universal is a character that belongs to multiple instances. The form of an *ousia* is an actuality; it is the functioning together of the *ousia*'s material constituents. In Z.17 Aristotle argues

that what makes the material parts one could not itself be a material part; it is, rather, a form. This conclusion holds of artifacts, like houses, but also, and more properly, of plants and animals. Because forms of artifacts can exist in different types of matters, and because any of these materials can take on different types of forms, artifacts are intrinsically pluralities and, thus, not properly *ousiai*. In contrast, the material parts of plants and animals, the organs, cannot exist as such apart from the form. The form is the cause of this unity because it is the actuality of these material parts, and form and matter are, *in a way*, the same (H.6.1045b17-23). The way in which they are the same is that both form and matter are the capacities that the *De Anima* calls «first actualities» (2.1.412a21-b6). The *form* is the capacity of the matter, that is, the capacity of the organs of a natural *ousia*, to function together. Since the matter only exists as such, that is, as organs, when each organ has the capacity to function, and since it has this capacity only when it is united with the other organs, the *matter* too is the capacity of the organs to function together.

Insofar as the form is the *functioning* of a particular matter, it not only unifies the organs, but also makes them into a *single*, composite individual. A matter that has the first actuality, that is, the form, is an individual. To be sure, we know a form's nature through a universal formula, and this formula characterizes the forms of all the like instances of the species. However, the form cannot *be* a universal because it is the functioning of some particular matter and, thereby, constitutes that matter as a particular individual. Nor can the matter that functions be the universal through which it can be known. Again, we can say that the particular kind of functioning that characterizes dogs is the same in all dogs, but the functioning itself occurs only with a matter, and the functioning individuates this matter into one dog. In this way, the form is the principle of knowledge and of being of an individual *ousia*. It is the primary *ousia* even though it is separate only in formula and not separate simply (H.1.1042a25-31).

With this conclusion we can finally see what it really means to say that an individual is the basic unit of being and intelligibility. The *material* parts of a natural *ousia* constitute an *ousia* because they are capable of functioning together. This capacity to function together is their *form*,

and the *purpose* of their functioning together is to sustain the natural *ousia*, that is, to allow it to continue to function. This functioning comes to it from its parent and is passed along to its offspring. In short, the four causes through which an individual *ousia* is known play determinate roles within the individual *ousia*.

This is the way in which an *ousia* is the unit of being. We can see that it is intelligible through itself, but there is more. In the *De Anima*, Aristotle claims that we never think without a sensible image (οὐδέποτε νοεῖ ἄνευ φαντασμάτος) (3.7.431a16-17). The reason is that the objects of thought reside in sensible forms (ἐν τοῖς εἶδεσι τοῖς αἰσθητοῖς τὰ νοητά ἐστί) (8.432a4-5). As we saw in the *Metaphysics*, an intelligible form, a first actuality, that is, the potential for the material parts to function together, is what makes those material parts one *ousia*. I think that the *De Anima* is saying that we know the intelligible form *through* images of sensible forms because we grasp the intelligible form as the source of the unity of these images. The sensible forms are the counterparts of the material parts, and the intelligible form exists as the principle of the unity of sensations in our minds, just as it exists as the principle of the unity of matter in the *ousia*. The form that exists in the *ousia* is, thus, the form that our mind comes to receive or, better, that our mind comes to be in knowing the *ousia* (4.429a15-18; 429b30-31). In this way, the physical world is not only intelligible to us, but it contains within itself something intrinsically intelligible and akin to mind (430a3-9). Again, the unit of being and the unit of knowability are the same, the individual *ousia*. There will, in general, be multiple instances of any natural *ousia*. But each is known through itself, even if it is known in the same way as every other *ousia* of the same sort.

Immobile, eternal *ousiai* are not made many by matter. Hence, each of them is, in itself, one in number and one in formula (Λ.8.1074a33-37). Each is and is intelligible through itself. So, each unmoved mover is also a unit of being and of knowledge, even if knowing its nature is beyond our capacity. It serves as the cause of all other *ousiai* but not by any direct action on its part. Instead, it is a cause, a final cause, because all other *ousiai* seek to imitate it. So seeking, the sensible *ousiai* or, at least, their species come to partake in eternity through continuous generation. However, in the generation of a composite individual, neither its form

nor its matter is generated (1033a24-b19). Both are somehow passed along. To a remarkable extent, individual composites are known through themselves.

II

The Aristotelian synthesis that we have just seen is enormously attractive. However, cracks begin to emerge when we reflect on the consequences of making individual *ousiai* the basic units of being. The main problem is how to understand interactions among different *ousiai*. For Aristotle an interaction is a relation, one of the categories. As such it is «present in» some individual *ousia* (*Cat.* 1b25-27; 2a34-35). That is how instances of all categories other than *ousia* exist. If, then, two *ousiai* are related, their relation cannot be a single being because it could neither exist alone nor belong to one *ousia*. Rather, one *ousia* contains within itself an instance of the category of relation, its relation to the other *ousia*, and the latter in turn contains within itself its relation to the former *ousia*. One relation becomes two distinct beings with distinct locations.

The limitations of this way of thinking become apparent when we try to understand global features of the cosmos. Because each *ousia* is one, there cannot be an *ousia* composed of other *ousiai* (Z.13.1039a3-4), even though Aristotle sometimes treats groups of *ousiai* as if they did constitute a single *ousia*. Thus, he claims that all the *ousiai* in the cosmos are ordered in respect of one thing (πρὸς [...] ἓν), but in the same way as in the household where the free man is least able to act at random and must rather do as prescribed, and the slaves and livestock, contributing little to the common good, act most randomly (Λ.10.1075a17-23). He means that the heavenly bodies, being most rational, are most orderly; whereas human beings, only sometimes governed by reason, are less orderly. Neither cosmos nor household is properly an *ousia*, but each is close enough to admit a proportion: what is most governed by reason is most orderly, whereas what is less rational is less orderly and more random.

The proportion seems to be a kind of organizing principle. So, we should ask, what sort of being is it? Where is it located? Aristotle claims

that someone with reason will act rationally, and someone without it will not, unless he is governed by someone else with reason. As in the family, so in the cosmos. Principles of action lie in the individual agents: *ousiai order themselves* in respect of the unmoved movers. Thus, there need be no overarching principle, nor could there be such a principle because there is no place for it to reside. At best there is a kind of fortuitous harmony among independent *ousiai*. Aristotle recognizes analogies, but because they are not confined to a single genus (Δ .6.1016b31-1017a3), and because every nature belongs to some genus, analogies can have no nature (see I.2.1053b24-1054a19). They are, then, not beings. In each genus there is some species that is one in that genus, a species through which other species in the genus are measured. But these ones have no common nature. Their analogy amounts to a bit of metaphysical fortune rather than ontological principle. To be sure, all beings are related, directly or indirectly, to the unmoved movers, and all owe their being to the unmoved movers. However, other beings get their order from their own natures, not from the unmoved movers.

Whereas global proportions are rare in Aristotle, they are central to Thomas Aquinas's arguments throughout his work. To mention but one random example, in order to argue that creation belongs only to God, he assumes that the order of agents corresponds to the order of actions (*Summa Contra Gentiles* 2.21.2 [2012, 61]). Whereas other actions presuppose creation, creation presupposes no other actions. Hence, it is the first action. God is the first agent. Aquinas does not argue this latter point here, but of course God presupposes no other agents. Given the correspondence between agents and actions, Aquinas concludes that creation belongs exclusively to God.

Another, similar argument for the same conclusion assumes that effects correspond proportionally to their causes (2.21.4). Aquinas reasons that since the act of being is universally present, it is the first effect. Whereas determinate effects like being a man or being white are caused by determinate causes, inasmuch as the act of being is universal, its cause could only be a universal agent, God.

Aquinas claims that the assumption that effects correspond proportionally to their causes, comes from Aristotle's *Physics* 2. He probably means 3.195b25-28, but there Aristotle is expounding a point

about specifying a cause precisely. Aristotle had said that the most precise cause of someone's building a house is his being a housebuilder – is this the source of Aquinas's assumption in 2.21.2 about the order of the agent corresponding to the order of actions? – and the cause of his being a housebuilder is, in turn, the art of housebuilding (195b21-25). Aristotle adds that we should specify a general cause of what is general and a particular cause of what is particular: the sculptor of the statue, as opposed to *this* sculptor of *this* statue (195b25-28).

Whereas Aristotle is making a point about specifying causes precisely, Aquinas reinterprets it as a triple correspondence between the order of agents, the order of actions, and the order of effects. He uses these corresponding orders to derive a conclusion that connects God exclusively to creation. This conclusion requires that each order extend from highest instance to lesser instances and that it have some sort of reality. Aquinas draws on this reality to associate the top entries in each order; that is, the first cause (God) with the first act (creation) and first effect (creation).

It hardly seems necessary that the first cause have a first effect. After all, Aristotle's first cause is a final cause: his cosmic order is the result of individual *ousiai* that, because of their different degrees of rationality, strive to imitate the unmoved movers (the final cause) in different degrees. The unmoved movers are weak organizational principles inasmuch as sensible *ousiai* sustain *themselves* by striving to imitate them. In contrast, Aquinas sees the cosmos and all of creation as produced, preserved, and governed by God (2.1.3). God is the efficient cause of each being, its formal cause, and its final cause (2.15.7,5,8). Inasmuch as the "orders" of beings, acts, and effects belong to the cosmos and creation, they too must be the work of God.

What sort of being do these orders have? They are not *ousiai*, but they have some sort of existence, at the very least in the mind of God, but also in the world. This point helps to explain how Aquinas transforms Aristotle's correspondences into real proportions. When he claims that being is predicated analogically in respect of a relation to God (2.15.2-3), he is speaking about a cosmos with a far more robust unity than

Aristotle's.⁶ Aquinas's proportion can reside in such a cosmos as well as in God's mind, whereas Aristotle's proportions are more like verbal parallels (I.1.1052b5-7). This new understanding of the cosmos is an essential step in the development of the modern, that is, seventeenth century, perspective on the cosmos even though it still presupposes that the individual is the principle of knowledge and being.⁷

III

Aristotle's basic unit of being and intelligibility is the individual *ousia*. Thomas Aquinas sets up proportions between different sorts of *ousiai* and their different effects. Modern philosophers hold on to the proportions, but drop the *ousiai*. They see the proportions as mathematical relationships between characters. Often the characters are defined by these relationships. In other words, instead of individual, self-subsistent *ousiai*, modern philosophers talk about mathematical laws of nature that express relations between characters; specifically, between characters that are themselves defined through these relations.

It follows that the modern perspective on the principles of reality is the inverse of the Aristotelian position. Whereas Aristotle takes an individual *ousia* as the basic unit of being and knowledge and, accordingly, must take a relation between two *ousiai* as two distinct attributes, each belonging to one *ousia*, seventeenth and eighteenth century thinkers take the relation to be the basic unit of being and knowledge. This transformation allows them to treat the cosmos as a whole and to appreciate the uniformity and regularity of connections, that is, scientific laws. Yet, it comes with a cost.

In order to make this transformation, modern philosophers need to deal with the problem of location: where does a relation exist? Aristotle could point to an individual sensible *ousia* as the location of relations

⁶ This unity explains why it is plausible for Aquinas to take $\pi\rho\delta\varsigma\ \acute{\epsilon}\nu$ to be a kind of analogy in contrast with Aristotle who distinguishes $\pi\rho\delta\varsigma\ \acute{\epsilon}\nu$ from analogy: in Aquinas's unified cosmos, analogies become ontological relations.

⁷ Foster 1934, 446-468, esp. 448, argues that Christian doctrine lies at the root of modern science.

and other attributes, as well as the location of the causes through which it is known. The first cause is another *ousia*, one that is itself uncaused, and therefore even more intelligible through itself than sensible *ousiai*. As I said, the latter depend on the former for their persistence, though not for their natures.

Where, though, is a law of nature? Newton's first law, inertia, takes motion as an attribute of one body that will be retained by the body unless, through impact, it is passed along to another body.⁸ His second law, $F=ma$, is more problematic because it expresses the impact of one body on another. It envisions a force, such as the force of gravity, that belongs to or is derived from one body being applied to a second body over a period of time and predicts how much the second body accelerates. So, the law expresses the relation of two bodies. Does this law reside in the impacting body that exerts the force, the left side of the equation, or in the body that is impacted and, thereby, accelerated in accordance with its own mass, the right side? What could it mean for this law to be in either body if it expresses a relation between them?

Even more challenging is the law of gravity. According to this inverse square law, a force of gravity extends outward from every mass infinitely throughout space even if the force can be measured only in relative proximity to the mass. In order for a force or, indeed, anything else to extend through space, space must somehow be able to carry it, and that is only possible if space or the cosmos as a whole is somehow a unified thing. But what sort of a thing could it be?

Neither a law nor a force extending throughout space could be an individual entity in any ordinary sense, in the way that Aristotle envisions his principles. What are they and where are they located? I submit that this question motivated the emergence of modern philosophy and that the more familiar questions about how mind exists, about the relation of mind and body, and about the explanatory character of matter arose in connection with attempts to answer this question.⁹

⁸ Newton 1999, 62. He states the law of gravity in bk 1, prop 74 [1999, 239].

⁹ Still influential: Burt [1925, 11] «For modern metaphysics [consists of] the attempt to reinstate man with his high spiritual claims in a place of importance in the cosmic scheme». In sharp contrast, Machamer [1976, 168] thinks that Descartes aims to explain the inanimate world by referring only to matter, but fails [1976, 195].

This is obviously too large a thesis to argue here, but part of any case for it is its ability to account for the striking differences between the ancient/medieval and modern approaches and for some of the, frankly, bizarre notions that modern philosophers advanced. It will suffice for my purposes here merely to explain how it *could* be the basis of an alternative understanding of the impetus to modern philosophy and, indeed, modern science.

Perhaps, modern philosophy's most striking innovation is its separation of mind and matter into distinct realms. In Aristotle and his medieval successors, intelligible form exists together with sensible matter as its shape or function, and the individual composite is intelligible by virtue of its form, as we saw. It follows that something akin to mind exists in nature. In contrast, when mind and matter are separated, matter (body) can be considered on its own: One body has the same nature as another, though it may have quantitatively measurable differences, including differences in motion. And one body can act on another with the result being the motion of a body. In other words, there is a certain autonomy to matter once it is separated from mind. However, any treatment of matter can only be done through mind. Thus, in his sixth meditation, Descartes argues that our clear and distinct idea of matter must be caused by matter if God is not a deceiver [Descartes 2000, 135-36]. Famously, the idea of matter is simply extension, and matter's motion is an extension's change of position relative to other extensions. The other sensible traits that we might have associated with matter, such as weight, hardness and, color (*Principles of Philosophy* 2.4 [2000, 254-55]) fall by the wayside because they are unintelligible. What remains are ideas of matter and motion that mind grasps through mathematics. In this way, the laws of nature – whose being and location had seemed so problematic – are located within mind, whereas the bodies that these laws characterize have their own separate and independent existence.

This separation is problematic because the laws that govern matter's motion do not belong to matter. Evidently, laws describe motions without causing them. That physical matter and its mental laws are connected depends on a God whose own veracity guarantees the truth of what belongs to our minds clearly and distinctly. We need only grasp clearly and distinctly the law of the motion of matter to be assured that matter

moves as the law describes. Even so, Descartes never imagines that he will be able to do without experiments: there are so many ways to deduce phenomena that he will need experiments to decide between them.¹⁰ Although he gives mind a special status, his aim is not so much to do so, as to find a foundation for scientific knowledge, just as he says. It is the location problem that explains why science needs a foundation and why that foundation consists of separation and correspondence.

Descartes' correspondence between mind and matter is undercut if they each act on the other, as he claims they do in his *Passions of the Soul*;¹¹ for then matter's moving the soul and soul's moving matter could not come under laws of physics that account for matter's motions by describing matter-matter interactions. On the other hand, without some such body-soul interactions, the soul would have no way to come to perceive bodies. It could not even rely on the famous wax argument to know what does and does not belong essentially to body.

Spinoza remedies these problems by excluding matter-soul interactions and proposing a type of identity between mind and matter, both of which he takes to be attributes of the single, all encompassing substance that he calls God. This solves the location problem nicely. The laws of nature are just the physical motions of the body: the laws belong to the mental attribute, the motions to the extension (material) attribute of God. More specifically for each body, corresponding to any motion that it has, there is a thought of that body (which Spinoza calls a «mode») and a thought of its motion, thoughts that could be in a person's mind but always belong to God's mind (*Ethics* 2P13 [Spinoza 1994]). In this way, the physical relations between bodies are the same as the conceptual relation between the ideas of them (2P7). To speak generally about motions of bodies is to use a universal concept that signifies

¹⁰ Descartes 2000, 75-76: «the power of nature is so ample and so vast, and these principles are so simple and so general, that I notice hardly any particular effect without at once knowing that it can be deduced in many different ways [...]. My greatest difficulty is to find in which of these ways it depends on them. For, to this end, I know no other expedient [...] except to search [...] for some experiments».

¹¹ Descartes 1989, art. 34, 37-38; cf. art. 35. Since Descartes does not claim to know how they can interact but that they must do so, he would not be persuaded by the usual assertion that the two could not interact.

multiple physical motions. The laws of motion are the conceptual counterpart of the movements of bodies (see the Axioms and Lemmas that appear after 2P13).

Spinoza provides demonstrations of all his claims, but it is hard to see what motivates his metaphysics – unless, that is, we appreciate that he is seeking a place for laws of nature that govern the relations of individual bodies and, therefore, cannot belong to any one body. Whereas Descartes locates laws in one substance and matter in a distinct, independent substance and leaves their connection external, Spinoza solves the problem of their connection by locating laws and matter in a single substance.

Although Leibniz accepts the main features of Spinoza's solution, he insists on distinguishing God from created substances (*Discourse on Metaphysics* [DM] 8).¹² In consequence, there are a plurality of created substances, each of which is a self-contained nature and, thereby, much like Spinoza's single substance. Leibniz argues that, from the nature of each substance, all of its other characters follow. In this way, «every substance is like a complete world and like a mirror of God» (DM 9). Complete in itself, each substance cannot be altered by another substance. Hence, there can be no real interaction. Even so, there is a kind of conjunction among substances based upon a Divinely arranged pre-established harmony (DM 14). Within each substance there is a body (or, at least, the idea of a body; that is, extension and motion) and a soul (DM 12). All this seems to be what Bertrand Russell once disparaged as metaphysics «designed to win the approbation of princes and princesses» in contrast with Leibniz's more serious work on logic and science [Russell 1945, 581]. However, Leibniz draws on this metaphysics when he launches into a discussion of the laws of motion and argues for the conservation of force, rather than the conservation of motion (DM 17-18). More important than the soundness of this argument is the way that his metaphysics allows him to make it. The soul/mind is able to think the relations between extended objects, that is, bodies, because within an individual substance the thoughts and laws about bodies belong to mind and indicate the way that the substance's own

¹² Leibniz 1989, 35-68. Paragraph numbers of this work are cited in my text.

body or any other bodies actually move. Again, the laws that govern bodies are the mental counterparts to the bodies, both of which belong to each individual substance. Thus, each substance unfolds, as it were, in accordance with its nature and the laws that reside within that nature. Like Aristotle, Leibniz takes individual substances as basic units and he locates relations within individual substances, but to avoid a single relation's belonging to distinct substances, he denies that substances have external relations – a drastic expedient.

We can appreciate the significance of the problem of location if to solve it Leibniz is willing to deny interactions between substances. To put this point differently, it is hard to see what could have motivated Leibniz to advance a metaphysics that is so far from common understandings unless he were intent on responding to a very significant metaphysical problem. That problem is, I am proposing, the metaphysical problem of finding a place for laws of nature.

Seventeenth century rationalists are usually contrasted with British empiricists. Are the latter equally concerned with how there can be laws of nature and where those laws are located? Not ostensibly, but we should look closely. They advance empiricism in response to continental rationalism. If the latter is concerned to account for scientific laws, must not the empiricists advance alternative accounts of scientific laws to undermine it? They do consider scientific laws, and I suggest that they were dealing with the location problem. However, instead of showing what the world must be like if there are to be scientific laws located within it, as the rationalists try to do, the empiricists aim to show that we cannot grasp the world apart from our sensations of it and, importantly, that we need not address the location question to discover and use scientific laws. In other words, rather than radically revising metaphysics to account for laws, the empiricists set aside the problem and argue that scientific laws require no metaphysics. If this is right, the empiricists are not ignoring the problem of location: they are advancing a radically different solution. They are, as it were, making a point of *not* discussing the problem in order to show that we can grasp scientific laws without solving this problem and that the sort of knowledge rationalists sought is impossible for us to attain. I suggest that understanding that the empiricists are addressing this problem does much to explain their positions.

Consider, for example, the view held by all of them that thoughts are attenuated sensations and, thereby, less real than sensations. It follows that a scientific law could only be a correlation among sensation types. There is no possibility that such correlated sensations would reveal what Hume called the «ultimate springs» of nature, nor could we determine what these are.¹³ Empirical correlations of sensations yield serviceable scientific laws. They are located in our minds; we cannot say how they exist outside our experience.

A few details suffice to round out this picture. Locke disputes the rationalist notion of the independence of thought by arguing that innate ideas are not found in children and idiots. If, then, our ideas must all come from experience what can we make of the underlying substance in which the sensed attributes must inhere? Since anything we might suppose ourselves to know about it would be a sensation and, thus, an attribute, the underlying substance could never be known, Locke argues [2004, 268-69]. He concludes that we can only say that it must be there, not what it is. This undermines all three of the rationalists' accounts of substance. But it also makes clear that we do not need to know what substances are to know their attributes.

Berkeley chides Locke for assuming the existence of an underlying matter that is not empirically accessible. Without the existence of something to anchor sensations, every sensation must be true, and scientific laws become simply a prediction of sequences of sensations. It follows that when a straight stick is placed in water, it really does bend, and it becomes straight when removed, just as we see it [Berkeley 2009, 219]. That, too, is a law of nature. However, Berkeley still needs to account for the regularity of the sequence, and in the absence of matter, he proposes that God is its cause.

Assigning to God the unifying role that matter had had scarcely seems a good way to avoid metaphysical accounts of scientific law, at least so Hume thinks (sect. 7, pt. 1 [1975, 219]). Instead, he draws the conclusion that we have no experience – nor could have any experience – of any substance that, though itself unsensed, holds sequences of sensations together. We can say, at best, that we have regularly experienced similar

¹³ Hume 1975, 30. He compares his own investigation of our minds with Newton's study of nature [1975, 14-15].

sequences. This notion is the basis of Hume's famous treatment of causality. Assuming that our knowledge comes from experience and that we can have no experience other than an association of impressions, Hume reasons that our idea of causality can contain nothing more than the regular conjunction of impressions of the same sorts, with the prior sort being designated the cause (sect. 7, pt. 2). The argument is bolstered by earlier arguments that impressions are matters of fact and that we cannot infer one matter of fact from another: «When I see [...] a billiard ball moving towards another [...] may I not conceive a hundred different events might well follow from that cause» (sect. 4, pt. 1 [1975, 29]). His point is that scientific laws are matters of association, not inference. They are also limited: «Our senses inform us of the color, weight, and consistency of bread, but neither sense nor reason can ever inform us of those qualities which fit it for [...] nourishment» (sect. 4, pt. 2 [1975, 33]). Why bread is nourishing is now well understood, but Hume's point is rather that science needs only the conjunction of impressions, not an account of the whole of nature like the rationalists tried to give.

If this is right, the familiar dispute between rationalists and empiricists in the modern period is rooted in a disagreement over whether philosophers should or, even, could account for a unit of intelligibility that would accommodate scientific laws that relate one body to another. Rationalists insist on providing accounts, however challenging they may be. Empiricists insist that the project could never be completed and that it is unnecessary to try.

In short, empiricists direct their attention to showing that the problem of locating principles that the rationalists address is either not a problem at all or one that is intrinsically insoluble. However, neither Berkeley nor Hume can acknowledge the problem because it requires referring to what we cannot, in principle, experience or, therefore, know, a substance behind what we sense. Still, we should not be taken in: empiricism is as much a response to the location problem as rationalism even if it is carefully crafted to show that the problem simply could not exist. To make a point of showing that it cannot be a real problem is tacitly to acknowledge that it is a problem. Ironically, they, like the rationalists, reject Aristotle's notion of a single substance as the basic unit, even though they continue to use his language of substance.

Do the empiricists tacitly endorse a solution to the problem of locating relational principles? Although they all speak of laws as relations of sensations and, therefore, as in our minds, even Hume recognizes that there must be «ultimate springs» within nature. Of course, he denies that we can know what they are. If, though, we have no access to them, there is no ground to suppose them to be confined to a single substance, as Aristotle did. Nor need there be any other strictures on their character or their location. We cannot say that these «ultimate springs» are common to the entirety of nature as the rationalists did, but nothing prevents us from seeking laws that apply to the entirety of nature. Whether such laws can be discovered is an empirical determination, but all the empiricists assume that Newton indeed did succeed in finding such laws, and they model themselves on Newton. So, for practical purposes the empiricists do assume that the entire cosmos is the unit in which the principles of being and of knowledge can be located. Again, the empiricists utterly reject the search for ultimate principles in nature, principles that would ground the relations of sensations that we can experience but that cannot themselves be experienced. Consequently, they reject the entire problem of the location of those principles as well as the problem of what the fundamental unit of knowledge and being is. Ironically, though, in rejecting these problems, they eliminate the metaphysical obstacles to treating the cosmos as the unit of knowledge and being – which is just what they do in practice, when it is possible to do so. I suggest that in refusing to address the issues, the empiricists do tacitly address it.

IV

This paper has argued that whereas Aristotle's basic unit of being and intelligibility is an individual *ousia*, modern philosophers must expand this basic unit to accommodate what Aristotle takes to be relations between *ousiai* because the laws of nature are relations. They do so in one of two ways. The rationalists introduce radically new ontologies according to which either all matter is a single substance, or all matter and thought constitute two attributes of a single substance, or, third, each substance contains within itself all of its apparent relations with

every other substance, actually interacts with no other substance, but moves with all others in a pre-established harmony. Alternatively, the empiricists reject the possibility of giving a metaphysical account, but insist that we do not need to have one to discover scientific laws which are, after all, only relations between measurable, sensible characters. In throwing off metaphysical restrictions limiting these empirically discoverable laws, the empiricists accept that relations and «ultimate springs» are indeed located in the cosmos even if they cannot assert that this is so and even if these springs may also belong to individual substances.

Where, then, does that leave us? The Aristotelian synthesis is very attractive, but it cannot account very well for the relations, that is, the interactions between the basic units nor, consequently, for the order of the cosmos. Recognizing the power of these relations, philosophers from the modern period solve this problem by making relations the basic units of being and knowledge and by locating them in the cosmos somehow. These relations are scientific laws. Aristotle has no scientific laws because his principles are either individual *ousiai* or located within individual *ousiai*. This identification or location answers the question of what the principles are. In contrast, the relations, that is, the scientific laws that are the principles of modern philosophy cannot be located within individual substances. So, modern philosophers struggle to understand where they could be located and, equivalently, what they are. Rationalists assume that the principles must exist in the world, and they try to articulate what the world must be like in order that they do. Empiricists locate the principles within our experience as relations of kinds of sensations. They deny that we could know how they exist in the world, but they tacitly assume that the laws do exist in the world somehow and, thereby, reject the Aristotelian notion that an individual is the unit of being and knowledge.

The choices are, then, stark: We can retain an Aristotelian ontology where individual units are understood, mostly, through themselves but where their relations cannot be adequately treated. Doing so, we give up modern science. Alternatively, we can take relations and, thereby, the laws of modern science as *realities* in the world, as most scientists do, or as merely empirically verifiable conjunctions of experience. Either

way of endorsing relations leaves us unable to understand how these relations exist in the world. So, we retain relations, but lose ontology.

There is another serious philosophical issue with making relations the units of reality, one that did not emerge until after the modern period of philosophy: in a world that is understood through relations, that is, through scientific laws, it is challenging if not impossible to account for an individual, including individuals such as ourselves. It is because each law applies to all of nature that neither it nor a conjunction of other laws can define an individual.¹⁴ A sufficiently large conjunction of relations might delimit a single unique individual to which all belonged, but it could not exhibit the individual's nature. So, we either have a world of individuals in which relations cannot be properly understood or a world of relations in which an individual cannot be properly understood.

So far as I can see, the question of the fundamental unit of being and knowledge remains a crucial, but as yet unresolved metaphysical issue. Scientists think about it, especially quantum physicists pondering whether so-called «quantum entanglement» makes the world «monistic».¹⁵ The terms in which they pose the problem are technical, but I suggest that it is at its root the same problem and that it is one that philosophers should continue to contemplate.

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¹⁴ For more discussion of this issue and others treated here, see Halper 2015, esp. 511-13.

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Keywords

Aristotle; principle; cause; laws of nature; problem of location

Abstract

This paper proposes a framework through which to understand the difference between ancient and modern approaches to the principles of being and knowing, it shows how the limitations of the ancient approach led to modern approaches, and it explores some of the difficulties with modern approaches. Taking Aristotle as exemplary of the ancient approach, the paper argues, first, that he takes an individual *ousia* to be the unit of knowledge and being and that that allows him to locate principles within individual *ousiai* and, thereby, to explain what it is to be a principle. Although this Aristotelian synthesis is quite attractive, the paper argues, second, that it faces difficulties in accounting for relations between *ousiai* because such relations cannot properly belong to a single *ousia* but are, nevertheless, important for understanding the cosmos as a whole. Thomas Aquinas overcomes some of these difficulties by, as it were, strengthening the unity of the cosmos to allow the reality of proportions, but he retains *ousiai* as fundamental units. Third, the paper argues that it was philosophers from the modern period who overcame Aristotle's limitations by taking relations rather than *ousiai* to be the principles of knowledge and being. These relations are the laws of nature. However, since these laws must themselves have some sort of reality, modern philosophers then faced what the paper calls "the problem of location": How can these principles be located in the world? What must be the nature of the world if the laws of nature belong to it? The paper shows that a number of arguments made by modern philosophers become intelligible when we see them as solutions to this problem. However, the paper proposes, in the end, that neither the ancient nor the

modern approaches to principles yield adequate solutions to the questions of what it is to be a principle and what the fundamental unity of knowledge and reality is.

Edward C. Halper
Distinguished Research Professor of Philosophy
University of Georgia
Athens (GA), USA
E-mail: ehalper@uga.edu

FIONA LEIGH

THE WOLF AND THE DOG: ERISTIC,
ELENCHUS, AND KINDS OF WISDOM
IN PLATO'S *EUTHYDEMUS*¹

TABLE OF CONTENTS: 1. *Introduction: Socrates the sophist?*; 2. *Sophistic and elenctic methods in the Sophist*; 3. *The use of eristic in the Euthydemus*; 4. *Elenchus, tacit belief, and self-knowledge in the Euthydemus*; 4.1. *The elenchus and avowed beliefs*; 4.2. *Ordinary tacit beliefs and 'elenctic' tacit beliefs*; 4.3. *Elenchus and epistemic norms*; 5. *Conclusion*.

1. *Introduction: Socrates the sophist?*

The old French saying '*entre chien et loup*' ('between a dog and a wolf') hints at the danger of confusing the warm, loyal and protective with the fierce, ruthless, and predatory. It is used to refer to the time between day and night – dusk – in which we are especially vulnerable to mistaking a wolf for a dog. In a similar vein, the *Sophist's* Eleatic Stranger warns his young interlocutor, Theaetetus, not to let the similarities between the sophist and the practitioner of the elenctic method blind him to their crucial differences, alluding to the resemblance of a wolf to a dog, «the most savage of animals to the most gentle» (231a6). All the same, Plato has the Eleatic Stranger describe the master of *elenchus* – the method for which Socrates was famous – as a sophist, albeit a sophist of noble birth (231b7-8). But if both are sophists, the reader is left wondering why one is called wolf, the other dog. A more

¹ I am grateful to the participants of a Keeling workshop on Plato and the Sophists at UCL in 2020 for comments and suggestions on an earlier version of this paper, especially Merrick Anderson, M.M. McCabe, and Rachel Barney. I would also like to thank the editors of the journal for their thoughtful suggestions on the paper and helpful guidance.

sustained comparative study of the method of elenctic examination and that of sophistic eristic is found in the tightly structured *Euthydemus*, with its interleaving of sophistic and Socratic episodes. There too, even though it is clear enough who is cast in the role of self-serving predator (i.e. wolf), and who in that of gentle protector (i.e. dog) – the brothers Euthydemus and Dionysodorus in the former, Socrates in the latter – the reader could once again be forgiven for wondering why. To be sure, as is well documented, the brothers deliberately go in for a style of argument that appears to be littered with semantic and syntactic ambiguity, a sort of ‘fallacy-mongering’, while Socrates’ arguments seem at least to aim at logical validity.² Nonetheless, their respective goals appear to be the same: to cross-examine their interlocutor, unearth contradictions in her views, and make her accept the view the questioner offers. So why paint Socrates once more as the good guy, why suggest that his mode of inquiry is something different, somehow morally or epistemically elevated? One suggestion, to revert again to the *Sophist*, is that Socratic questioning is beneficial because it cleanses the soul of false beliefs (230b-e). As Vlastos pointed out, however, a contradiction on its own furnishes no resource for the identification of falsehood.³ But if it is not the power of logic that flushes out falsehoods, Socrates must achieve this by other means. And this invites the question whether Socrates is

² The view of the majority of commentators, and one that I endorse here, is that the arguments presented by the sophists trade on various linguistic ambiguities, semantic and syntactical. What is still very much in dispute is what to make of Plato’s intentions in having the sophists present such arguments. Most take the arguments to be fallacies, though there is disagreement over whether Plato had a sophisticated or detailed grasp of their fallacious nature. Many have argued that he did, and was essentially engaged in the same project Aristotle undertakes in the *Sophistici Elenchi* [e.g. Bonitz 1886; Gifford 1905; Sprague 1962, 1977; Hawtrey 1981], while others have argued that Plato did not have the logical resources to properly diagnose the fallacies he presents [Robinson 1942, 1953, Chance, 1992]. For an excellent, very recent discussion of this debate, see Campbell, who argues that the *Euthydemus* provides evidence that Plato did in fact have «the logical resources necessary to expose the linguistic fallacies of the *Euthydemus*» [Campbell 2020]. For the alternative view that the ambiguities in the sophistic arguments do not amount to fallacies, but are consistent with certain radical metaphysical views that are presupposed (but not stated or defended) by the sophists, see McCabe 1994, 2013, 2019.

³ Vlastos 1994, 3 ff.

a wolf after all, albeit one – as perhaps Plato finally saw in the *Sophist* – of a fine and noble kind, less interested in bloodying his victims for his own sake rather than for their own, relieving them, at least, of the conceit of their own wisdom.⁴

In this paper I will argue that Socrates shows himself in the *Euthydemus* to be well cast in the dog-like role of protector in that dialogue (as in the *Sophist*), and to the extent that his method and its epistemic outcome are radically different from and opposed to those of the sophistic brothers in the *Euthydemus*, he is likewise shown to be no wolf, though that characterisation proves apt for the brothers. One central plank of my argument is the claim that Socrates' method of examination, the so-called elenctic method, is primarily beneficial or constructive, and aims at a substantial epistemic outcome within a dialectical context. It proceeds by the questioner eliciting and drawing attention to reasonable or well-founded views or beliefs the interlocutor already holds, relevant to the subject of inquiry, and secures further agreement that additional claims, which follow immediately or almost immediately, express claims the interlocutor was previously committed to, although she was unaware of this fact: the method unearths tacit beliefs of the interlocutor relevant to the inquiry. Revealing such beliefs as belonging to the interlocutor thereby affords a certain kind of self-knowledge to the interlocutor, which I will refer to as 'epistemic self-knowledge'. The primary outcome and goal of the method, epistemic self-knowledge, is also a further source of its epistemic significance: the articulation of well-reasoned views on the topic in question, which in turn, under the right conditions, may conduce to understanding or first-order knowledge on that topic in future investigations. Additionally, I will argue, in the process of elenctic questioning, the interlocutor is revealed as having a prior commitment to certain epistemic criteria or norms. Last, a further frequent outcome of elenctic questioning – itself epistemically neutral but nonetheless beneficial – is the generation of a contradiction.⁵ In combination with the constructive outcome of the

⁴ So Nehamas 1990, 9 ff., and before him Robinson 1953.

⁵ As indicated above, since the production of a contradiction is not on its own sufficient for evaluating the truth-value of either premise, it is epistemically neutral with respect to knowledge or belief claims.

elenchus, however, contradiction facilitates a further use of the method – this time destructive: a critical reappraisal, and potential abandonment of, a previously avowed premise that is in fact opposed to the well-reasoned conclusion that has emerged.⁶

By contrast, I will argue, the eristic method used by the sophistic brothers in the dialogue is destructive. Although it is used, like Socrates' method of questioning, to show that the interlocutor's answers are self-contradictory, unlike Socrates' method, the brothers' procedure does not target the interlocutor's reflected-upon and considered views. Eristic remains studiously indifferent both to what is the case, and to what the interlocutor is inclined, upon reflection, to take to be true by their own lights, or to take as what follows from previously agreed premises. Nor does eristic employ epistemic criteria or norms – standards of rational reflection by which falsehoods may be distinguished from truths, genuine from ersatz knowledge. It seeks instead to elicit a series of utterances, whatever they might mean, in whatever context, and without time for reflection, that formally contradicts an earlier claim of the interlocutor, and so generates the appearance of genuine contradiction. The combative nature of eristic then sees the questioner demand that the interlocutor concede that they were mistaken or wrong in uttering the earlier claim, and the sophist emerges victorious, the interlocutor defeated. The crucial difference between the *elenctic* and eristic methods, I will argue, is that in the former the interlocutor makes no epistemic progress, while in the latter she does. For, in eristic she is not, as in *elenctic* questioning, brought to a critical awareness of the truth-functional reasons for her assertions, or to self-knowledge, but is left confused and bewildered by appearances, vulnerable to admission of defeat.

The methodological and epistemological contrast between *elenchus* and eristic can be brought into sharp relief by viewing the procedures employed by each of Socrates and the sophists in the *Euthydemus* as dramatic illustrations of two arts or expertise described in abstraction in

⁶ It is this element that Vlastos overlooks in his assessment of the Socratic *elenchus* as producing no positive outcome, and providing no warrant for Socrates' claims or intimations in the early dialogues that the interlocutor's initial claim is shown to be false [Vlastos 1994]. For further discussion on this point, see Leigh 2020, *passim*.

the *Sophist* – the sophistic art (as characterised in the seventh account of sophistry) and the ‘cleansing’ art of ‘noble sophistry’. The juxtaposition will afford a clear view of the brothers’ practice in the *Euthydemus* as the production of false appearances in the mind of their interlocutor, which production depends only on the beliefs of the interlocutor and exploits their adherence to various epistemic norms. It will also facilitate the comparative view of the Socratic *elenchus* as similarly focused on the beliefs of the interlocutor, but with the constructive aim of revealing to the interlocutor his pre-existing epistemic commitments or beliefs, relevant to the subject of enquiry. We will then be in a position to see that the display of the two methods in the *Euthydemus* each yields a distinct picture of wisdom, the one incompatible with the other, and each highly valued by the method’s practitioners. In presenting these competing methods and conceptions of wisdom, Plato invites the reader to reflect on their differences and relative merits, but with a particular focus, I shall argue, on their divergent effects – the one beneficial, the other harmful – on the interlocutor.

2. *Sophistic and elenctic methods in the Sophist*

Although the question whether sophistry is adequately defined in the *Sophist* is widely debated, the seventh attempt to account for it is generally accepted as (at least) offering a true description of the practice, according to Plato in that dialogue. On that account sophistry is the deceptive and persuasive production of false appearances, which present their objects as being some way they are not.⁷ Similarly, the description of the method of the ‘well-born’ or ‘noble’ (γενναῖος) sophist at 226b-231b has been noted by many scholars to capture many if not all of the essential features of the *elenctic* method practiced by Socrates, as depicted in the early dialogues.⁸ I here draw out the main characteristics of each method in the *Sophist*, before turning to their illustration in the *Euthydemus*.

⁷ See, for example, Cornford 1935; Notomi 1999, 119-139; Crivelli 2012, 25-27; Gill 2012, 147-148.

⁸ The observation can be found in, for instance, Cornford 1935, 180-81; Nehamas 1990, 13; Vlastos 1994, 17; McCabe 2003, 203; Taylor 2006.

At 232b6, b12ff., the Eleatic Stranger focuses on the sophist's skill as controverter (ἀντιλογικός) able to engage in countersaying or contradiction (ἀντιλέγειν, 232c9, d7, 233a6, b3, c2, d9) about anything whatsoever. Earlier, the more technical kind of debating about general issues such as justice and injustice, eristic, was said to be a sub-kind of such countersaying (225c7-9). The Stranger then claims that the sophist practices mimetic production of images (εἰδωλα) of a certain kind, appearances *phantasmata* (236a-c). In contrast to likenesses (εἰκόνες), appearances are produced with a view to the specific conditions under which the hearer or viewer experiences the mimetic object, and adjusted accordingly. The mimetic producer (artist or sophist) crafts the object with an eye on the appearance he wants to inculcate in the audience, rather than ensuring that the mimetic product (a monumental statue or an argument) remains faithful to that of which it is a copy. So, e.g., the feet of the statue, near the viewer, are made proportionally smaller in comparison to the body of which it is an image (235e-236a). For the sophist, who deals in images in words (εἰδωλα λεγόμενα, 234c6) the faithlessness in question concerns the relation of the content of the propositions offered to his interlocutor and the way the world is. Since the sophist is able to countersay his interlocutors about anything, but necessarily lacks knowledge of everything (232c-233c), inevitably his arguments contain false statements. Moreover, his near boundless skill in producing contradiction in his interlocutor⁹ produces the additional appearance of himself as prodigiously wise, effective in recruiting students, who wish to emulate him and his wisdom. What are the conditions of his hearers, which the sophist exploits in producing his brand of appearances? The chief condition mentioned in the *Sophist* is their ignorance, usually arising from their youth and inexperience (234c-e), but since sophists frequently profess to teach virtue (224b-c), the requisite ignorance will on that score be found in anyone lacking moral knowledge, i.e. everyone (or, almost). Another is brought out in the sophist's false projection of himself as wise, together with the Stranger's remark that mimesis is an entertaining game (234a-b). For,

⁹ The limit of the sophist's skill is found in the person who has knowledge of the topic under discussion, and to whom the sophist's objections will not appear sound (233a5-7).

exercising the ability to trap almost anyone in contradiction on any topic can easily amuse as well as impress, and inculcate a desire to please others similarly, by appearing witty and wise.

By contrast, the cleansing art of cross-examination described in the dialogue (ἐλέγχειν, 230d1), though it also frequently results in the interlocutor contradicting himself, bears a very different relation to the truth. With the aim of education, and preparing the soul for learning, the expert refutes by collecting his interlocutor's opinions during conversation, and, laying them side by side, shows him that they conflict with one another about the same subject, in the same respects, in relation to the same thing, and at the same time (230b6-8, cf. *Apol.* 38a). Consequently, his interlocutor loses his inflated belief about himself – that he is saying something rather than nothing (*Sph.* 230b8-c2; 230b4-5, cf. *Apol.* 23b) – and, generally, beliefs that would interfere with learning (*Sph.* 230c7-d4). In what appears to be a direct reference to the *Apology*, the Stranger says that the soul refuted thus «believes that it knows only those things it does know, and nothing more» (230d3-4; *Apol.* 21d3-6, cf. 29b1-2). An almost universally overlooked feature of the *elenctic* method, however – and which is crucial for my purposes – is that the interlocutor is brought to an awareness of his pertinent beliefs *vis-à-vis* the inquiry, some of which he was previously unaware – i.e. he is brought to an awareness of his previously tacit relevant beliefs. It is not infrequently one of these tacit beliefs that contradicts a belief the interlocutor has previously avowed, in strong terms, on the subject of investigation. So the interlocutor is brought to see that and how he holds contradictory beliefs on that subject, and so is ignorant with respect to it.¹⁰ To the extent that the interlocutor arrives at an accurate, i.e. true, assessment of what he knows and the limit of his knowledge regarding the topic of discussion, the *elenctic* method facilitates a kind of epistemic self-knowledge. Finally, the critical reflection involved in uncovering beliefs of which the interlocutor was previously unaware, as well as uncovering ignorance, invites awareness of the assumption and adoption of certain epistemic principles.

¹⁰ For examples and discussion of the *elenctic* method facilitating this process of uncovering tacit beliefs, contradiction, and ignorance in the *Alcibiades*, *Laches*, *Charmides*, and *Gorgias*, see Leigh 2020.

We turn now to the *Euthydemus*, in which the methods are portrayed, and contrasted, in the interleaving episodes.

3. *The use of eristic in the Euthydemus*

The *Euthydemus* consists of a frame dialogue in which Socrates and Crito discuss the conversation of the previous day, containing five episodes. Of the five, the two Socratic ‘protreptic’ episodes, urging young Clinias to pursue wisdom, are interleaved between – and so vividly contrasted with – three ‘eristic’ episodes of questioning by the brothers. In the frame, Socrates says that the brothers are experts in combat, both bodily combat in wrestling and soul-combat in the courtroom, and also, as of late, in word-combat by way of arguments, refuting (ἐξελέγχειν) whatever is said, true or false (272a-b). Thus, their wisdom is said to be ‘eristic’ (272b9-10).¹¹ Their promise is wisdom: they claim that they are able in a short time to make anyone clever like them in arguments (δαινός, 272b4), and that they are able to teach virtue (273d8-9). When Socrates asks them to make a display of persuading Clinias to love wisdom and care for virtue, they stipulate just one condition: that «the boy be willing to answer» (275c).

The central role of countersaying or contradiction in the sophists’ method is on display from the start, as they quickly have Clinias, under questioning, articulate the negation of a claim he has just made, and continues to the end of the dialogue. This is just as we would expect from the method’s description in the *Sophist*, which focused on its key characteristic of countersaying (ἀντιλέγειν), and described its practitioner as fond of controverting (ἀντιλογικός). The identification of eristic as a species of countersaying expertise in the *Sophist* is also consistent with Socrates’ characterisation of the brothers’ wisdom as ‘eristic’ at *Euthyd.* 272b9-10. The challenging suggestion to Ctesippus, that there is no such thing as countersaying (ἀντιλέγειν 285d-286b), is also consistent with the *Sophist*’s description of sophistry. For, in the *Sophist* this is the Stranger’s analytic description of the sophists’

¹¹ Indeed, Socrates describes the sophistic brothers as ‘wise’ or ‘having wisdom’ numerous times (273e-274b, 274d).

skill, not the way they themselves characterise their skill, which skill, moreover, he says they are able to produce in others (232b). Now, for their own part in the *Euthydemus*, they claim to teach virtue. Thus if, by appearing to their students to possess virtue and in particular wisdom, they take on and teach them the skill of inducing contradiction – but not by that name – they will have taught their eristic kind of wisdom, without explicit recognition of, or commitment to, countersaying. And this is precisely what they do in the *Euthydemus*, *via* the production of appearances or ‘images in words’, as we can see in the first eristic episode.

At 276a, in answer to Euthydemus’ question, Clinias affirms that in his view it is the wise who learn, rather than the ignorant. When, however, Euthydemus puts it to him that learners are ignorant about the subject of learning, Clinias agrees, since it appears to him (quite correctly) to be the case, before also agreeing to the further inference that the ignorant learn. But then he finds himself, somewhat confusingly, having agreed to an apparent contradiction: that it is the ignorant, not the wise, who learn, and it is the wise, not the ignorant, who learn. Immediately after the applause and laughter of the sophists’ followers dies down, and in response to Dionysodorus’ question, Clinias affirms that wise students, not ignorant ones, learn the writing master’s lessons (276c2-5). Here, context suggests that Clinias’ thought is likely that students who seriously set about learning and thereby succeed are wise, although it could also be that those who have learned become wise. Either way, it now appears to him – quite reasonably – that it is the wise who learn, not the ignorant, and, therefore, that he has once again contradicted himself.

Scholars have suggested that Plato’s purpose is to point up the fallacy of *secundum quid* here and elsewhere in the dialogue (e.g. in the argument that Socrates wants Clinias dead).¹² Certainly it is plausible to think that Plato would have expected his readers to notice that, for instance, the truth of the conclusion Euthydemus articulates at 276b4-5 ‘the ignorant learn’, without qualification and so taken *simpliciter*, does not follow in respect of every aspect of learning, since it only follows

¹² E.g., Sprague 1962, 5-8.

in respect of learners not knowing about the subject of their learning.¹³ Moreover, in light of the characterisation in the *Sophist*, we can add that the role of suitable qualifications, as either present or absent, helps to explain the plausible but ultimately suspect way that things appear to Clinias. For, with respect to that which they do not know before learning it, it is true that the ignorant learn and the wise do not, and with respect to applying oneself assiduously to learning, it is true that the wise learn and the ignorant do not. Moreover, it is true for all students in these respects, not merely a subset of them. So, the unqualified statements, ‘the ignorant learn’, and ‘the wise learn’ put Clinias in mind of appearances that are not only plausible, but within their context true, and true for all learners.¹⁴

However, absent specification of context or qualification of respect, these statements also appear to contradict one another, and thereby imply that Clinias was twice mistaken in the discussion. This, I suggest, is the point at which the content of the appearance generated by the sophist’s questioning is *not true*, but is, rather, in an important sense *false*. For, it has not been shown that Clinias’ claim, that the wise learn, suitably qualified as *per* the brief encounter with Dionysodorus, contradicts the claim that it is the ignorant who learn, suitably qualified as *per* Euthydemus’ questioning. Thus, it has not been shown that Clinias was mistaken in saying to Euthydemus that the ignorant learn (276a-b), as Dionysodorus claims at 276c7. So *this* appearance, generated by Dionysodorus – of Clinias being mistaken – appears true, but is in fact spurious. Indeed, we might want to say that the appearance that Clinias is mistaken at 276c7 is false, and obviously so – that is the point of Plato having the sophists so ostentatiously drop the qualifications and appearing to trip up young Clinias. Nonetheless, since, by Clinias’ own epistemic standards of consistency (evident throughout the encounter), the unqualified claims he has agreed to are not as they stand (i.e. in their unqualified form) consistent, it appears to him at 276c7 that he has made some error in making contradictory statements. But of course he has

¹³ And likewise, Dionysodorus’ conclusion at c6-7 taken *simpliciter*. *Contra* Robinson 1942, 105-106.

¹⁴ But see McCabe 2019 for the alternative view that the argument does not involve equivocation on ‘learning’.

no opportunity for critical reflection, since Euthydemus immediately resumes his questioning.

In this short section of the first eristic episode, then, we are given an illustration of the sophistic method as described in the *Sophist*: Clinias is put in mind of appearances that are plausible and seem true to him – some of which appear true because he is understanding them in their suitably qualified form, while another of which (the appearance that he has contradicted himself) appears true but is in fact false. Moreover, we can observe that the content of the beliefs that generate the false appearance that he is mistaken at 276c7 are not claims that the sophists have convinced him to adopt, but are instead his own. Insofar as they exploit his pre-existing beliefs, then, the sophists produce their appearances in a way that uses and adjusts for facts about their interlocutor. Equally, the sophists rely heavily on Clinias' assumption of and commitment to certain epistemic norms of rational reflection and deliberation: His commitment to the principles of consistency and logical entailment lead him to accept that since learners lack knowledge of what they learn, in the process of learning they learn while ignorant, then drive him to the conclusion that the ignorant learn, and, finally, make it appear to him that he has been mistaken in making inconsistent statements. This method is repeated by the brothers throughout the dialogue, which each time makes use of the interlocutor's pre-existing beliefs, and functions by holding him to his own epistemic standards or norms. We turn now to the depiction of the Socratic elenctic method in the *Euthydemus*.

4. Elenchus, tacit belief, and self-knowledge in the *Euthydemus*

The two protreptic or Socratic episodes in the *Euthydemus* are not generally thought to employ the elenctic method. This, however, is a mistake, induced by the suggestion that Socrates supplies contentful claims of his own, rather than eliciting the views or beliefs of his interlocutor.¹⁵ The suggestion, however, fails to notice the effect of the

¹⁵ See, e.g., Vlastos 1994, 30. Cf. Sprague 1962, 8-12; Hawtrey 1981, 18-36, regards the method used in the protreptic episodes as 'dialectic', which, however, he regards

fact that the dialogue is not centred around a ‘what is F?’ question, as the so-called ‘early’ dialogues are. As such, Socrates’ use of the method of cross-examination in the *Euthydemus* does not begin with his interlocutor’s claim to know what some property, such as piety or justice, consists in. Instead, the method arises in the course of his demonstration of ‘protreptic’ – a conversational encounter that aims to persuade Clinias to pursue virtue and wisdom. This begins at 278e-279c with Socrates determining, by asking questions, that Clinias possesses a number of beliefs, that all men want to do well, that they think the means of well-being is possession of many good things, and that good things include wealth, health, and so on. To be sure, it is Socrates who articulates the content of many of these beliefs, to which Clinias merely agrees. But as Plato has Socrates make plain,¹⁶ these are popular beliefs, very widely held, so it is entirely unsurprising that Clinias holds them too. Indeed, such beliefs are frequently offered to Socrates’ interlocutors in dialogues widely agreed to contain *elenchoi*.¹⁷ Moreover, as we will see, Socrates pointedly asks for Clinias’ own beliefs concerning the value of virtues, considered apart from what others think, at 279b. Nor should the absence of a ‘what is F?’ question give us pause, since, as we have seen, the description of the elenctic method in the *Sophist* does not specify this as the necessary context for the *elenchus*.

as closely related to the elenctic method, of which it is a development. In relation to the early dialogues, scholars diverge on the question of the sense in which the beliefs that emerge from *elenctic* questioning ought to be attributed to Socrates’ interlocutors: Brickhouse and Smith 1994, 73-83, argue that the *elenchus* shows them what they should believe; Kamtekar signals broad agreement with Brickhouse and Smith, but also suggests that *elenctic* questioning draws out beliefs we can regard as tacitly held, in the sense that «believing it involves accepting its entailments, acting on it, and so on» [Kamtekar 2017, 36]. Compare Benson 2000, 47-56, who argues that premises in *elenchoi* are most plausibly attributed to Socrates’ interlocutor.

¹⁶ 278e3-6; 279a3-4; 279a5-8.

¹⁷ In the *Laches*, for instance, Socrates asks Laches if he thinks those willing to endure in cavalry attack and well-diving despite being unskilled or lacking knowledge are more courageous than their skilled and knowledgeable counterparts (193b); in the *Euthyphro*, Euthyphro affirms that everyone thinks wrongdoers ought to be punished (8c-e).

4.1. *The elenchus and avowed beliefs*

I suggested above that a central element of the constructive use to which Socratic questioning is put is to isolate and make explicit to the interlocutor a series of views or beliefs, relevant to the subject of inquiry, that they (the interlocutor) already hold, that is, prior to being questioned by Socrates. Such use is on display in the first Socratic or protreptic episode. The question under investigation is what doing well consists in, since doing well is what everybody wants (278e) – and where doing well is treated synonymously with being happy (εὐδαιμονεῖν) from 280b onwards. They then quickly agree that the end would be achieved through the possession of many good things, including wealth, health, good looks, sufficient bodily necessities, noble birth, power, honour, being temperate, just, courageous, and wise. Last, they agree that good fortune should be added to the list (279a-c).

It is worth pausing to note that each of the claims Clinias agrees to thus far are presented by Plato as expressions of views or beliefs he already held. Socrates introduces the claims that everyone wants to do well and that this is achieved through having many goods, as accepted truths or as what everybody – so themselves included – would say, and as what is obviously the case (279a3-4). They are presented, that is, as widely held, shared public views about what is obviously the case. So too, Socrates says, everybody would avow that wealth is one of these goods (279a7), and likewise with the other non-aretaic items on the list. Clinias agrees, indicating not only that he, like everyone else, holds these views and is aware of doing so, but also that along with Socrates he takes them to be shared public views.

When Socrates gets to possession of the virtues – first the character virtues and then wisdom – however, he takes care to acknowledge that some people may well disagree with the suggestion that they are goods, making the question of ‘how things seem’ to Clinias and ‘what he thinks’ a genuinely open one.¹⁸ The use of the present tense in both cases, moreover, makes it clear that Socrates is asking what Clinias presently takes to be the case, and how things presently, i.e. already, seem to Clinias, as opposed to whether he would (in the future, after

¹⁸ ἡγῆ ('you think'), 279b6; σοὶ δὲ πῶς δοκεῖ; ('but how does it seem to you?'), 279b8.

considering the question) agree with the claim. Clinias' answer in the affirmative, then, reveals his view to be one he already holds, and is, once again, aware of holding.

After Clinias has assured Socrates that they haven't left out any goods worth speaking of from the list of those that lead to doing well, Socrates – who is, within the fiction of the dialogue, narrating the story to Crito the next day – says he then remembered a good they had omitted, viz., good fortune. Given that their list consists of goods, through the possession of which one does well or attains happiness, a genuine omission from the list would be of a good that is necessary for happiness, as well as, together with the others, jointly sufficient for it. Socrates' reason for nominating good fortune as a good of this kind is that everybody says it is the greatest of goods (279c). Clinias again agrees, thereby indicating that he, along with everybody else, believes that good fortune is a good necessary for happiness, and that his previous omission of it had been an oversight. So, in this early part of their conversation, Socrates' aim is to draw out a series of views and beliefs that already belong to the young man, and which he is aware of holding.

4.2. Ordinary tacit beliefs and 'elenctic' tacit beliefs

During the rest of the first Socratic episode, Clinias will agree with a series of claims: that wisdom is good fortune, that happiness also requires the use of good things, that such use in turn requires knowledge, and that wisdom alone is good on its own, while the other goods are not. For my purposes, it will be sufficient to restrict myself to the first claim. The majority of readers understand this claim (as well as the others mentioned) as one that Socrates introduces to Clinias, who is led to accept it, adopting it as one of his own beliefs (at least for the course of the argument).¹⁹ This interpretation, however, is mistaken. For, as I will maintain, careful attention to the text shows that Socrates not only continues to identify and draw attention to beliefs Clinias already self-consciously holds (beliefs he has avowed and is aware of holding),

¹⁹ E.g. Irwin 1995, 55-56; Russell 2005, 30-31.

Socrates' central purpose is to show him that he possesses further beliefs relevant to their investigation into what it is to do well, which, however, he was previously unaware of holding – tacit beliefs.

Socrates frames the second phase of the discussion by telling Crito he reconsidered a second time (279d), and reports that he next suggested to Clinias that they had, in effect, double-counted by including good fortune, since they had already counted wisdom among the goods. This is because, he says, wisdom is good fortune. Clinias' amazement makes it clear that this is not a belief he counts among his own. Indeed, as mentioned above, most commentators assume that it is not one of Clinias' beliefs at this stage of the discussion. As I will argue shortly, however, there is good reason to think that this is not so – that in fact it is one of his beliefs, although one that he is not aware of holding, i.e. that it is one of his tacit beliefs.

Of course, given Clinias' state of amazement, it cannot be a tacit belief in the ordinary sense of that term in contemporary philosophy: Commonly understood, a tacit belief is such that, although the subject is not consciously aware of holding the belief (it might never even have occurred to her), once it is put to her she immediately and unhesitatingly assents to it, since she sees that it follows immediately or in a very short number of inferential steps from beliefs she has previously avowed and is aware of holding.²⁰ For instance, I may never have considered whether Queen Elizabeth II weighed less than the Eiffel Tower, but when asked, I will immediately affirm that I think she did weigh less. The belief does not represent something I have just learned, or even something I have figured out in response to the question, but in an important sense

²⁰ Dennett 1978, 1987, Lycan 1986. Tacit beliefs may also play a role in judgement formation: imagine a person explaining that why she stepped out in front of the near-silent electric car without looking is that she had assumed that if a car was coming, she would hear it. Even if the agent had never directly contemplated the conditional claim, such an explanation strikes us as eminently plausible and acceptable, since it is an entirely reasonable generalised impression to form on the basis of (what is presumably) her previous experience of cars as distinctly audible. Note that this sense of 'tacit' or 'implicit' belief is distinct from Hawthorne's conception of 'implicit' belief, which is a belief the content of which the subject is not disposed to judge to be true, but which is manifested in the subject's actions or inferential behaviour [Hawthorne 2000].

was antecedently part of how I viewed the world, and in that sense something I already believed. In this way tacit beliefs can be attributed to the subject, each being something she was already in an important sense committed to, given the set of her self-conscious or previously avowed beliefs. By contrast, in our passage of the *Euthydemus*, Clinias does not assent but instead expresses amazement. Thus, the thought that wisdom is good fortune is not one of his tacit beliefs in the sense ordinarily intended. Nonetheless, I will argue, we ought to understand it to be amongst his tacit beliefs. I will suggest, that is, that it is a belief that, by Clinias' lights, follows immediately or in a short number of inferential steps from his self-consciously held beliefs, and is in this sense something he is already committed to, and part of his epistemic world view. All the same, it is a belief that he needs to learn (or discover) that he holds, since he is not disposed to assent to it when it is presented to him as one of his beliefs. Socrates' questioning is aimed at precisely this – revealing to Clinias that this belief, which I shall call the 'target belief', is one of his tacit beliefs in this non-ordinary sense. Indeed, since, as we will see, the kind of elenctic questioning commonly associated with Socrates in the literature, particularly the Socrates of the early dialogues, is the method through which the interlocutor discovers this non-ordinary sub-set of tacit beliefs, I will call them 'elenctic' tacit beliefs, in contrast to the more ordinary kind ('ordinary' tacit beliefs), familiar from contemporary philosophical discussions.

Notice first the way that Socrates immediately describes the target belief, that wisdom is good fortune: he says at 279d that even a child would know it. Taken at face value, Socrates' assertion here is that everybody – including Clinias – not only shares the view, but knows it. At the very least, then, Socrates claims that the belief is true and ought to be ascribed to Clinias. In the context of Clinias' amazement, I take Socrates' claim to be an announcement of the thing to be established – that the target belief is indeed among the things that Clinias believes, despite his being unaware of it. Socrates commences his demonstration by asking whether Clinias knows that flute-players have the best fortune playing flute, and writing masters have the best fortune at reading and writing. The perfect indicative active form of the verb, οἶσθα, 'you know' (279e1), together with Clinias' quick assent, strongly suggests

that these are beliefs he already holds, and is aware of holding. He next agrees, without hesitation, that ‘as a general rule’ (279e6) he doesn’t think (οἶεἰ, 279e5) – this time note the present tense – that any pilots have better luck than wise pilots, and that, were he to be at war, he would prefer to do so with a wise general than an ignorant one, and last that, were he to be ill, he would be content to take a chance with a wise doctor rather than an ignorant one. Socrates then puts it to him that the generalisation, that it is better fortune to do things together with a wise person than an ignorant one, belongs to him as something that he thinks (οἶεἰ, 280a4).²¹ Clinias’ easy agreement here, both to beliefs concerning possible future scenarios and to the generalisation at 280a4-5, suggest that Socrates has articulated either beliefs the youth is already aware of holding, or beliefs that he tacitly holds in the ordinary sense. So, e.g., Clinias may already self-consciously believe that doctors who are knowledgeable about medicine, and so are wise in the relevant sense, have considerably more success in treating patients than ignorant doctors, generally speaking.²² If so, and if it happens to be the case that Clinias has never contemplated the scenario involving himself before, then the further belief, that he, Clinias would be better off if treated by a knowledgeable doctor, would be an ordinary tacit belief. Finally, we ought to note that the content of these beliefs is explicitly said to range over the long term in such a way as to be beliefs about what is the case

²¹ There is the question of whether Socrates equivocates over the use of εὐτυχία and εὐτυχεῖν. See Sprage 1962, 10-11, for the view that any equivocation is benign.

²² Understanding this claim, and others like it in the text, as beliefs that Socrates ascribes to Clinias rather than propositions Socrates is advancing allows us to construe the claim as an impressionistic (i.e. vague) and unreflected-upon opinion about the general correlation between expert knowledge (i.e. wisdom) and success in that expertise over the long run. If this is the sort of epistemic state in view, Socrates is not attributing to Clinias the claim that wisdom guarantees success, and the question of how wisdom could be thought to do so does not arise. So we need not examine (as some scholars do) whether, in speaking of success, Socrates has in mind a kind of success internal to agents (i.e. successfully performing the actions called for by their expertise), as opposed to the outcomes of the actions, which are vulnerable to factors external to the agent and her control (see e.g. Russell 2005, 30-31). That is, it is plausible for the young man to believe the general correlation holds without distinguishing between these alternatives.

for the most part, or ‘as a general rule’ (ὥς ἐπὶ πάντων εἰπεῖν, 279e6). So understood, the good fortune that someone with knowledge or expertise of the relevant practice or craft enjoys ranges over their practice as a whole and its outcomes in general, over time.

Socrates then draws two closely related conclusions in quick succession, and in the frame conversation with Crito reports that he and Clinias finally agreed to the second, though he says he ‘doesn’t know quite how’. The first conclusion has a distinctively causal tone: that wisdom makes a person fortunate in each case, since qua wise nobody would err. The second is that if a person has wisdom he has no need of good fortune in addition (280b). Although the text does not tell us either way, I submit that it is plausible to think that Clinias must have agreed to the first conclusion immediately, rather than after further discussion. For, the previous generalisation that we saw him confirm as one of his own – that it is better to do things in the company of the wise than the ignorant – together with his beliefs about particular cases, strongly suggests that he antecedently possessed a belief not mentioned in the text – that insofar as they are exercising their wisdom, people do not err, as opposed to people who act from ignorance, who do err – either avowedly or tacitly (in the ordinary sense). That is, if we attribute to Clinias the general view that knowledge is the difference-maker between cases of the most success over the long run and other cases, it is a short step to the conclusion that knowledge and wisdom *make* a person do well through not erring, when exercised. This conclusion then would articulate one of Clinias’ (ordinary) tacit beliefs. If this is right, the beliefs articulated in the reasoning from 279e-280b, including the first conclusion, are beliefs that Clinias is either aware of holding already, or are tacit in the ordinary sense.

Once he has seen that he thinks that wisdom makes a person fortunate, Clinias is primed to see that he thereby possesses very strong reason to think that a person who has wisdom does not need good fortune besides. For, since the person who is wise will, on Clinias’ view, reliably enjoy good fortune in virtue of being wise, it follows that they will have no need of good fortune in addition. So, the person who attends to the former, when it is one of their beliefs, will immediately assent to the latter – if it is put to them, as Socrates evidently puts it

to Clinias. Moreover, if they have not considered it before, they will assent to the latter belief – that the wise person has no need of good fortune in addition – as something that in an important sense they already believe, i.e. as a tacit belief. That is, they will not assent to it as a claim that they have now learned is true, and which represents a new item of knowledge they have acquired, on the basis of newly acquired information or observation, or on the basis of acceptance of a principle or a novel theoretical claim recently introduced to them. And indeed it seems that Clinias cannot previously have seriously considered the question, whether the wise person also has need of good fortune, in light of his amazement at Socrates' suggestion that including both wisdom and good fortune is double counting. But once Clinias' (ordinary) tacit belief that wisdom makes a person have good fortune has been revealed, and becomes one of his avowed or self-conscious beliefs, he is able to attend to it. And, attending to his belief concerning the productive role of wisdom in securing good outcomes, he is in a position to recognise that the thought or claim that good fortune is not needed in addition to wisdom is, in an important sense, something he is already committed to, i.e. that it is one of his (ordinary) tacit beliefs. And once this tacit belief is brought to his awareness, given the context of their discussion, it will be obvious to the young man that he already has good reason to think that including good fortune on the list of goods required for someone to do well, when wisdom is already on the list, amounts to double-counting. So he is able to see that, for the purposes of the list, he was already committed to the thought that listing wisdom suffices to list good fortune. That is, in this context, he was already committed to the target belief, as part of his epistemic world view, that wisdom is good fortune: it was one of his tacit beliefs, and he is now able to come to a second-order awareness of this fact about his beliefs. But as his amazement when this claim is initially put to him attests, it cannot be an ordinary tacit belief, but must instead be an elenctic tacit belief, something that he is at first unable to see as one of his own commitments. It is only when other of his avowed beliefs are elicited and drawn to his attention as relevant to the inquiry, and further ordinary tacit beliefs, also relevant to the discussion are revealed thereby, that he is able to grasp his pre-existing commitment to the target belief. It is therefore to

be considered one of his (previously) tacit beliefs – not in the ordinary sense, however, but in a distinctively critical self-reflective or ‘*elenctic*’ sense.

Although considerations of space mean that I am unable to provide more than a brief sketch as a promissory note for future investigation, I would like to suggest that in the remainder of the first Socratic episode, Socrates continues to deploy the elenctic method in his discussion with Clinias. The discussion concludes with the claim that wisdom is the only good thing by itself, alone worthy of serious, sustained pursuit – a substantive claim to be sure, but one that, if it is indeed the fruit of elenctic questioning as I have understood it, a belief that the young man is brought to see that he was, in an important sense, committed to all along.

4.3. *Elenchus and epistemic norms*

Throughout the first Socratic episode, Socrates relies on Clinias’ adherence to epistemic norms, i.e., standards or criteria for reasoning in inquiry taken to be rational and conducive to truth. He depends, for instance, on Clinias’ acceptance of the principle of logical consistency in raising the worry of ‘double-counting’ when they initially conceive of good fortune as an additional good at 279c. (One cannot consistently regard a good as additional to those already listed if one also takes that good as already included or brought along by another on the list.) Clinias’ willingness to investigate whether wisdom is after all good fortune, which willingness Socrates (correctly) takes for granted, strongly suggests Clinias’ antecedent acceptance of the epistemic standard of reasoning that one consider conditions under which a claim would be false. Finally, Socrates relies on Clinias’ commitment to logical entailment when he suggests that they investigate what bearing the newly emerged belief at 280a-b (that the wise person has no need of good fortune in addition) has on what they previously agreed. The application of these norms or standards in their conversation is in this way productive of the young man arriving at awareness of his beliefs and the underlying grounds for them – arriving, that is, at epistemic self-knowledge.

5. Conclusion

We have seen that the sophistic eristic method is entirely destructive: it is parasitic upon Clinias' pre-existing beliefs and commitments to various epistemic norms, purely for the sake of making things appear a certain way, regardless of how things really are, and even when the appearances are false. For example, Clinias' appears to himself to directly contradict himself (over and over again), and the sophists – seemingly able to reveal his being repeatedly mistaken in what he thinks – appear to Clinias as being prodigiously wise. Socrates' elenctic method also relies heavily upon Clinias' pre-existing, previously avowed beliefs and his acceptance of epistemic norms. Unlike the sophists, however, his goal is to carefully and explicitly draw these beliefs out, and, presenting them sequentially for Clinias to reflect upon, to allow him, while deploying the relevant epistemic norms, to come to an awareness of his previously tacit beliefs, relevant to the subject of inquiry. Some of these tacit beliefs will be immediately available to his awareness – I have called these ordinary tacit beliefs – in contrast with those that require effort and reflection to identify as something he was in an important sense committed to all along – what I have called *elenctic* tacit beliefs. Insofar as it is productive of this kind of epistemic self-knowledge, Socrates' method is constructive: it allows his interlocutors to grasp at a higher-order level that they have a range of first-order beliefs they were previously unaware of holding, that are grounded by other beliefs they have excellent reason to regard as true, at the first-order level. By contrast, the sophists' destructive method is an obstacle to first-order knowledge regarding the subject of discussion and, through the confusion it induces, produces a destabilization of their interlocutors' higher-order grasp of their own beliefs on the topic in question – those the sophists question, while they question them, find that they don't know *at all* what they think, or why.

The practice of the two methods in the *Euthydemus* in turn invites the reader to discern the two disparate conceptions of wisdom and knowledge at play in the dialogue. The 'eristic wisdom' that Socrates attributes to the sophists at the start of the dialogue turns out to consist in the ability to have one's interlocutor appear to herself to contradict herself, and thereby reduce her to silence, regardless of the actual

content of the beliefs that lie behind her statements, and their truth value (an ability, as Socrates says towards the dialogue's close, to 'stitch up' people's mouths, 303e). This cleverness, therefore, is a kind of wisdom that does not require first-order knowledge of any subject beyond that of the technique and its effect on the interlocutor, which technique can be picked up quickly by anyone willing to imitate the method and emulate the sophist (as Ctesippus does, 303e-304a). In contrast, Socrates' not inconsiderable epistemic accomplishment in practicing the *elenchus*, in line with the method's characterisation in the *Sophist*, is to facilitate the interlocutor's awareness of her pre-existing beliefs and, significantly, to make plain her grounds for commitment to them. This kind of self-knowledge of her epistemic states – a certain sort of wisdom – is a positive result of the elenctic or Socratic method of cross-examination, which ought therefore to be understood as an essentially constructive method aimed at improving the interlocutor's epistemic condition.

We return, finally, to the *Sophist*, and the motif of the dog and the wolf, liable, under certain conditions, to be mistaken for one another. I have argued that the similarities between the two are, in several crucial respects, merely apparent. Nonetheless, it must be conceded that the Stranger does accept that the practitioner of *elenchus* is a kind of sophist, and therefore that there must be some significant respect in which the practitioner of *elenchus* is the same as the sophist. This respect, I want to suggest, is the appearance of the practitioner's wisdom concerning the topic or subject under investigation, which both methods induce in the questioner. For, being limited to a cross-examination of the questioner's pre-existing beliefs about the topic of discussion, the Socratic *elenchus* does not require its practitioner to possess first-order truths about that topic. All the same, and despite Socrates' continual disavowal of this sort of first-order knowledge in the early dialogues, the practitioner of *elenchus* is apt to appear wise to his interlocutors. This, we may conjecture, is perhaps why Plato has Socrates at the start of the *Sophist* wonder aloud whether the Stranger is a kind of god or divinity fond of *elenchus* (216a5-6). For, Socrates' remark turns out to exhibit a kind of prescience, since, as Plato will go on to depict him, the Stranger perceives clearly, as Socrates' interlocutors do not, both the limits and the achievements of the elenctic method.

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Keywords

self-knowledge; sophist; *elenchus*; *Euthydemus*; tacit belief

Abstract

In Plato's *Sophist*, the Stranger warns Theaetetus not to let the similarities between the sophist and the practitioner of the elenctic method blind him to their crucial differences, alluding to the resemblance of a wolf to a dog, «the most savage of animals to the most gentle» (231a6). All the same, Plato has the Eleatic Stranger describe the master of *elenchus* – the method for which Socrates was famous – as a sophist, albeit a sophist of noble birth (231b7-8), leading scholars to ask whether Plato in his later period regarded Socrates' method as essentially sophistic, and to that extent dubious and destructive. In this paper I argue that by looking to the illustration of the elenctic and sophistic methods in the *Euthydemus*, we can see that in several significant respects, Plato regarded the similarities as merely apparent. In particular, I argue, the elenctic method is presented as a constructive method, which facilitates the interlocutor's articulation and awareness of tacit beliefs about the subject under investigation. Some of these beliefs are tacit in the familiar sense that the interlocutor is already disposed to affirm their content. Other beliefs, however, are a special kind of tacit belief, in that although they follow immediately, or in a very small number of inferential steps from the interlocutor's pre-existing, explicitly held beliefs, they are not beliefs the interlocutor is disposed to affirm at the outset of the enquiry. The elenctic method is, therefore, able to bring the interlocutor to self-knowledge concerning their own beliefs, and the relations of entailment between them, concerning the subject of inquiry.

Fiona Leigh

Department of Philosophy and Keeling Centre for Ancient Philosophy, UCL, UK

E-mail: fiona.leigh@ucl.ac.uk

DOUGLAS A. SHEPARDSON

VARIETIES OF PLATONIC INNATISM: AN INTRODUCTION THROUGH EARLY MODERN PARALLELS

TABLE OF CONTENTS: 1. *Locke's critique of explicit content innatism*; 2. *Cartesian dispositional innatism*; 3. *Leibnizian latent content innatism*; 4. *Kantian constructivist innatism*; 5. *Malebranchian transcendent innatism*; 6. *Condition innatism?*; 7. *Varieties of innate objects*.

It is well-known, and mostly agreed upon, that Plato holds a theory of Innatism in the *Meno's* (81c-86c), *Phaedo's* (72e-77a), and *Phaedrus'* (243e-257b) discussions of recollection.¹ But what Plato takes to be innate in each of these dialogues, and in what manner or way he takes it to be innate, is the subject of increasing debate.² In this paper, I aim to clarify the conceptual space of different types of innatism by making some of the existing categories more precise, introducing some new ones, and arguing that others are incoherent or unhelpful for framing the nativist discussion in Plato.

While there are dozens of different types of nativism, my strategy in this paper is to focus on the various nativist views attributed to Plato by contemporary scholars, whether implicitly or explicitly.³ Through a happy historical accident, every «live option»⁴ for Plato's nativism – every interpretation that people should take seriously today – has

¹ The main dissenter, to my mind, is Gail Fine 1992, 2014, and 2021a, but also see Franklin 2009, 360.

² In the last twenty years, for example, see Williams 2002, Dimas 2003, Franklin 2005, Scott 2006, Rawson 2006, Kahn 2006, Fine 2007, Fine 2014, Iwata 2018 (on the *Philebus*), Bronstein and Schwab 2019, Castagnoli 2019, Fine 2021a, and Shepardson 2022.

³ This paper thus omits discussion of varieties of nativism absent from Plato scholarship.

⁴ For this terminology, see James 1956, 2-3.

a parallel in an early modern view. I thus introduce the nativisms relevant to interpreting Plato through an analogous early modern writer and briefly explain their views as a segue into the different varieties of Platonic innatism. I do this for three reasons: first, it is historically interesting to see how similar ancient and early modern figures are, depending on how one interprets them; second, this procedure can help to clarify various interpretations of Plato's innatism, since early modern discussions of nativism are typically more detailed than Plato's own and his interpreters'; and third, seeing the potential connections between, for example, Plato and Leibniz with respect to nativism encourages further questions about the relationship between Plato and Leibniz elsewhere. Accordingly, this should make this paper a topic of interest for anyone working on nativism in early modern philosophy, in addition to scholars of ancient philosophy.

Section 1 begins with an implausible variety of innatism that no one attributes to Plato, what I call "explicit content innatism". Similar to the position Locke critiques in the first book of the *Essay*, explicit content innatism posits innate mental contents that are explicit rather than latent, meaning that we have the current ability to become aware of our innate contents at birth. As we will see, Locke himself provides good reasons for rejecting this view. But I discuss it nevertheless for the sake of comparison. For, as explicit content innatism holds that content is innate and that we are aware of it at birth, what I call "dispositional innatism" denies the existence of any content in the soul at birth. Instead, it posits innate dispositions to later acquire such content. On the other hand, what I call "latent content innatism" accepts innate content, but denies that it is explicitly available for consciousness at birth. These latter two views are discussed in sections 2 and 3, and associated with Descartes and Leibniz, respectively.

Section 4 discusses the view that constructivist concepts are innate and is accordingly called "constructivist innatism". Constructivist nativist interpreters of Plato frequently allude to Kant in explaining their position, so I introduce it with a brief discussion of Kant's categories and his view on space and time. And section 5 discusses what we can call "transcendent innatism," which is analogous to Malebranche's claim that we «see all things in God».

These latter four varieties of innatism have been attributed to Plato by various scholars. And though I myself opt for latent content innatism, I consider all four of them “live” possibilities in the literature, insofar as there are no glaring problems with any of them. In contrast to these, I turn in section 6 to what has recently come to be known as “condition innatism” in the literature. In this section, I provide some reasons for thinking that condition innatism cannot be usefully distinguished from latent content innatism.

Having explained the different *ways* something can be innate in sections 1-6, section 7 turns to the various possible types of innate objects. As we will see, one can be a latent content innatist (or dispositional innatist) about knowledge, belief, or any number of other objects. I thus hope to introduce new readers to the current debates about innatism in Plato, helping them orient themselves in the discussion through the early modern parallels, and to frame the debate for future discussions of innatism in Plato.

1. Locke's critique of explicit content innatism

John Locke attacks a famous, but implausible, type of innatism in his *Essay concerning Human Understanding*. This incorrect type of innatism, Locke claims, asserts that

there are certain Principles both *Speculative* and *Practical* [...] universally agreed upon by all Mankind: which [...] the Souls of Men receive in their first Beings, and which they bring into the World with them, as necessarily and readily as they do any of their inherent Faculties (I.ii.2).

Locke critiques this view throughout Book 1, and his critique gives us an opportunity to better understand the type of innatism he has in mind. In contrast to these naïve nativists' claims, Locke maintains that if there were something innate, it would be known by everyone in whom it was innate. So, if certain propositions were innate in all humans (e.g., *whatever is, is*), then all humans would know that proposition. But all humans do not know that proposition for the simple reason that most

people, i.e., people outside of philosophy departments, have never considered it. So, that proposition is not innate in everyone, and this result is generalizable to every principle the naïve nativists deem worthy candidates for innateness (I.ii.5; cf. I.ii.1-4).⁵

As we will see below, however, nativists usually mean something different when they speak of innate principles. But we can still construct a type of nativism based on Locke's critique. He seems to be describing a view according to which certain propositions are literal things existing within the mind. That is, the type of innatism attacked by Locke posits some sort of innate content.⁶ Importantly, these propositions are in no way "hidden" or inaccessible; rather, the mind has immediate access to them upon birth. The mind is capable of explicit, conscious contemplation of them right away. I thus call this "explicit content innatism." For there is some content "in" the mind (the propositions or principles), and the humans in whom that content is allegedly innate have access to it right away; they can make it explicit in their occurrent consciousness whenever they like.

Since Locke speaks of innate *principles*, we can be more specific about this view and call the position he is attacking "explicit content innatism *about principles*". But if one thought these principles were *beliefs*, it would also be explicit content innatism *about beliefs*; and if the principles were thought to constitute innate knowledge, it would be explicit content innatism about knowledge, and so on for various other objects.

Although this view is interesting, and Locke presumably has someone in mind who held it, it is a very implausible type of innatism.⁷

⁵ The argument here requires an «awareness principle» to go through, such that anything within the mind must be an immediate object of awareness. For discussion of this principle, and a critique that it leads to begging the question against Locke's nativist opponents, see De Rosa 2004.

⁶ Note that Locke's principles are propositional; he is not speaking of, say, *archai* in the pre-Socratic sense. With the majority of contemporary philosophers, I take it as uncontroversial that propositions have some content (see, e.g., Bengson 2015, 709, n. 2). Locke agrees with the contemporary view. He thinks propositions are composed of ideas, which, for him, are intentional objects of the mind – mental contents.

⁷ See Rickless 2007 for a good survey of Locke's position and the contemporary Church writers he might have had in mind. For more discussions of Locke's innatism,

For, as Locke explains, no one is born with any principles as readily accessible as this type of innatism requires. Thankfully, no one has attributed this position to Plato, but I addressed it here nevertheless for the sake of comparison with the next two views: dispositional and latent content innatism. As we will see, it is helpful to think of these three views as generically similar, insofar as they are each framed around the presence or absence of mental content and its accessibility if present.

2. Cartesian dispositional innatism

While Descartes sometimes suggests a different type of innatism,⁸ I here discuss several passages in which he seems to opt for a dispositional innatism, where what is innate is a capacity, disposition, or potentiality. The main idea of this dispositional innatism is that there is no *content* actually present in the soul at birth:

First, by “innate ideas” I have never meant anything other than what the author himself [of the work Descartes is responding to], on page six of the second pamphlet, explicitly asserts to be true, viz. that “there is present in us a natural power which enables us to know God.” But I have never written or even thought that such ideas are *actual*, or that they are some sort of “forms” which are distinct from our faculty of thinking. Indeed, there is no one more opposed than I to the useless lumber of scholastic entities [...] (*Comments on a Certain Broadsheet*, CSM I, 309).

[T]hese ideas, along with that faculty, are innate in us, i.e., they always exist within us potentially, for to exist in some faculty is not to exist actually, but merely potentially, since the term “faculty” denotes nothing but a potentiality (*Comments on a Certain Broadsheet*, CSM I, 305).

see Barnes 1972 and the relevant works in the bibliography of Samet 2008.

⁸ For texts closer to latent content innatism, see his response to Gassendi in the *Fifth Set of Replies* (CSM II, 258 and 262). We see a similar ambiguity between dispositional and latent content innatism in Leibniz below. Clarifying whether Descartes and/or Leibniz is, on balance, a dispositional or latent content nativist is beyond the scope of this paper.

And indeed it is no surprise that God, in creating me, should have placed this idea [of God] in me to be, as it were, the mark of the craftsman stamped on his work – not that the mark need be anything distinct from the work itself (*The Meditations*, CSM II, 35).

I take Descartes' denial in these passages that the innate object is *actually* innate as a denial of actual content in the soul, rather than a denial of the content being *explicit*. For he denies that innate ideas are forms distinct from the faculty of thinking; they are not «entities». Instead, he seems only to countenance an innate capacity or potentiality here, which is not «distinct» from the mind itself.

Though there are some differences, this sounds like a *tabula rasa* approach to innate ideas: ideas are innate in the same way that a blank sheet of paper innately has the capacity to receive a string of letters or a drawing. In fact, it sounds so much like the empiricist view that Locke criticizes it at length as being «only a very improper way of speaking; which whilst it pretends to assert the contrary, says nothing different from those, who deny innate Principles» (I.ii.5, 23-26).

Leibniz responded in the *New Essays on Human Understanding*, a commentary on Locke's *Essay*, with a famous image for thinking about dispositional nativisms: the veined statue. This is a useful metaphor for thinking about the difference between dispositional nativisms and ordinary empiricism, and is thus worth quoting at length:

[To explain this type of nativism] I have also used the analogy of a veined block of marble, as opposed to an entirely homogenous block of marble, or to a blank tablet – what philosophers call a *tabula rasa*. For if the soul were like such a blank tablet then truths would be in us as the shape of Hercules is in a piece of marble when the marble is entirely neutral as to whether it assumes this shape or some other. However, if there were veins in the block which marked out the shape of Hercules rather than other shapes, *then the block would be more determined to that shape and Hercules would be innate in it*, in a way, even though labour would be required to expose the veins and polish them into clarity, removing everything that prevents their being

seen. This is how innate ideas and truths are innate in us – as inclinations, dispositions, tendencies, or natural potentialities, and not as actualities; although these potentialities are always accompanied by certain actualities, often insensible ones, which correspond to them (*NECHU*, 52, my emphasis).

Now, as we will see in the next section, I treat Leibniz as a latent content innatist in this paper.⁹ But he here provides an extremely useful analogy for understanding dispositional innatism. There is something innate that helps ideas, concepts, beliefs, etc., form in a specific way, and this is what differentiates it from empiricism.

More recently, some scholars have attempted to explain how dispositional nativism differs from empiricism by picking up on Leibniz's theme of "determination". According to them, the empiricist thinks the formation of our ideas, beliefs, etc. are general or undetermined; they do not imply a particular result. On the other hand, the dispositional innatist is thought to posit special faculties that determine a particular outcome. Hunter and Inwood, for example, explain dispositional nativism as positing innate *determinate* capacities or potentialities, whereas empiricism posits innate *indeterminate* capacities or potentialities.¹⁰ So the difference comes down to how determined or specialized the innate capacity, potentiality, or disposition is. If it is undetermined, it is empiricism; if it is determined, it is what we can call "dispositional nativism".

One important thing to clarify about dispositional innatism is that it should be taken in terms of first potentialities, not second potentialities. In the second and fifth chapters of *De Anima* II, Aristotle distinguishes between first and second potentialities and actualities (412a21-8 and 417a21-b2).¹¹ When a child is born, they have a first potentiality to learn a language. When they do learn a language, that first potentiality is

⁹ See n. 8 above on Descartes' ambiguity between dispositional and latent content innatism, and §3, with n. 13, on Leibniz's. The last sentence's talk of «insensible» «actualities» that correspond to the dispositions sounds to me like latent content innatism.

¹⁰ Hunter and Inwood 1984, 429-30. See Scott 1995, 92-93 and Cowie 1999 (chs. 1-3) for similar distinctions and more discussion. Cf. Fodor 1983.

¹¹ See Bronstein 2016 for a lucid summary of this distinction.

actualized and becomes a first actuality, which is now equivalent to a second potentiality. They then have a second potentiality to *use* the language, which becomes a second actuality when they do so use it. This is important because “disposition” is sometimes used to refer to a *second* potentiality – as in saying, “a French speaker is disposed to understand French” – but this is not the way I am using the term here. Throughout this paper, and most other discussions of innatism, “dispositional innatism” refers to innate first potentialities, not second potentialities. For an innate second potentiality is indistinguishable from the next type of innatism (§3), latent content.

So, when Plato says we have knowledge or true beliefs in us (two contenders, among others, for the innate object in the *Meno*), is he emphasizing that we have an innate capacity or disposition that helps us acquire knowledge or true beliefs in some way? While I do not myself think this view is correct, an impressive line of scholars have either accepted or flirted with dispositional nativism as Plato’s variety in the recollection dialogues.¹² So we should consider it a very “live” option in the literature.

3. *Leibnizian latent content innatism*

Like Descartes, Leibniz seems to sometimes opt for a dispositional view, as we saw above in his famous “veined statue” analogy. Here, however, I focus on a different strand in Leibniz’s discussions of innatism, one in which he seems to think that content is innate. But unlike the view Locke critiqued, this content is not explicitly available or accessible at birth. Instead, it is latent, and some people will never become aware of this content within them.

On Leibniz’s view,

the whole of arithmetic and of geometry should be regarded as innate, and contained within us in an implicit way, so that

¹² Vlastos 1965, Hunter and Inwood 1984, Fine 1992, Fine 1993, Fine 2003, Gentzler 1994, Dancy 2004, Rawson 2006, Charles 2006, and Franklin 2009. Note that Vlastos, Hunter and Inwood, Gentzler, and Dancy all seem to sometimes imply content innatism instead of dispositional innatism, just like Descartes and Leibniz.

we can find them within ourselves by attending carefully and methodically to what is already in our minds, without employing any truth learned through experience or through being handed on by other people. Plato showed this, in a dialogue where he had Socrates leading a child to abstruse truths just by asking questions and without teaching him anything (*NECHU*, 77).

While Leibniz does seem to take a dispositional approach elsewhere, he here seems to instead be saying that actual contents are innate.¹³ He is not saying here that the mind contains dispositions to form ideas of mathematical truths, but that the truths themselves, all of them, are actually present in the mind, only waiting to be “found”.

Like Leibniz, and a number of contemporary scholars, I too think Plato holds something like this view in the *Meno*, as well as the *Phaedo* and *Phaedrus*.¹⁴ I call this position “latent content innatism”. Unlike dispositional innatism, there is actual content within the soul; but unlike explicit content innatism, that content is not explicit or accessible at birth. Like explicit content and dispositional innatism, a variety of different sorts of objects can be innate. So one can have latent content innatism about true beliefs, about concepts, about knowledge, etc. But it is worth asking what it *means* to say that beliefs or knowledge, etc., are

¹³ In truth, I think the veined statue analogy is the anomaly, and that Leibniz is himself closer to a content innatist than dispositional innatist, all things considered (cf. n. 12 above). But this view is controversial, and I cannot defend it here. For one brief consideration, however, note Leibniz’s claim that the soul has no «doors and windows». On such a view, if there is not something *already in the soul*, nothing could ever be known. For Leibniz on the windowless soul, see §26 of the *Discourse on Metaphysics*, which also cites Plato’s theory of recollection. For discussions of Leibniz’s innatism, see Jolley 1990 and the relevant references in the bibliography of Samet 2008.

¹⁴ Moravcsik 1971; Scott 1987, 1995, 2006; Kelsey 2000; Caston 2001, 42; Williams 2002, 149; Bobonich 2002; Butler 2006, 24-25; Wolfsdorf 2011, 60; Bronstein and Schwab 2019; and Shepardson 2022. Note that whether Scott is a latent content innatist is controversial. Fine 2014 and Bronstein and Schwab 2019, for example, see him as a condition innatist, but since I do not think this distinction makes conceptual sense, as I explain below, I deny this claim and place Scott here among latent content innatists. Also note that my “latent content innatism” is different from Bronstein and Schwab’s “content innatism”.

innate in the sense of content. At minimum, positing innate knowledge *as content* would imply a radically different theory of knowledge from the sort we are used to.

A related question concerns how thick or precise the content is. For one can have content corresponding to every proposition or, as Leibniz notes elsewhere, certain «primary truths» from which numerous others can be derived.¹⁵ On the latter view, the primary truths would be innate in the sense of content and all the others would be innate dispositionally, since they can be inferred or deduced from that primary content. Alternatively, perhaps it is only the content of special objects, like Platonic Forms, that is innate for Plato. If we choose this view, we would need to decide whether it is a precise definition of the Forms that is innate, or a basic meaning sufficient for use in ordinary language and reasoning.¹⁶ We can call the former “strong” or “sophisticated” latent content innatism, and the latter “weak” or “rudimentary” latent content innatism.

4. *Kantian constructivist innatism*

Unlike the previous two views, the next two options have not been named in the literature, and there has been no detailed discussion of them. I accordingly aim to describe the views here and show that they are both live options, despite my disagreement with both. The first has a strong parallel in Kant.

Kant holds that we need certain a priori concepts, called categories, for the possibility of experience and thought. While one can acquire the concept of “dog” or “table” empirically, the concepts of “unity” or “cause and effect”, for example, cannot be so acquired:

¹⁵ See Leibniz’s essays «On Primary Truths» and «Meditations on Knowledge, Truth, and Ideas». I discuss the thickness of the innate content in the *Meno* in Shepardson 2022.

¹⁶ This latter distinction is similar to Locke’s nominal vs. real essences, the nominal essence of gold being “yellow, hard, metal, etc.” and the real essence being something like “substance with atomic number 79” (see Fine 2014 for this analogy). Scott 1987 and 1995 has famously argued that recollection is only about more advanced cognitive learners, i.e., that recollection is not responsible for the five-year-old’s grasp of “equality”.

Now this [Table of Categories] is the listing of all original pure concepts of synthesis that the understanding contains in itself *a priori*, and on account of which it is only a pure understanding; *for by these concepts alone can it understand something in the manifold of intuition*, i.e., think an object for it (CPR, A80/B106, my emphasis).

The reason for this is that experience already presupposes the concepts in question. We cannot have an experience without unity; prior possession of the category of unity is necessary for seeing an object as unified in the first place. Accordingly, Kant holds that the category of unity, and the other eleven, are *a priori*.

Regardless of whether Kant is a nativist, a number of Plato scholars have associated Plato's nativism with the Kantian view above.¹⁷ These interpreters take Plato to be making a similar point: just as thought and experience are impossible without the *a priori* categories for Kant, they think thought and experience are impossible without innate concepts for Plato. Since, on this view, innate concepts are necessary for *constructing* experience, I call this "constructivist nativism".

This type of innatism, then, holds that concepts are innate, but that these concepts somehow construct or structure experience. But latent content innatism can also be about concepts, so I want to spend some time differentiating latent content innatism about concepts from constructivist innatism. How do the two differ? Those who attribute innate concepts to Plato sometimes just mean that some sort of information is innate, typically, information about the Forms. Possessing the concept of "beauty" innately, for instance, is sometimes parsed as possessing a rough definition of beauty, or understanding how the word is commonly used. One can use the word because one already contains the information about its use. As we sometimes say, they "have

¹⁷ Whether Kant is a nativist is controversial (see, e.g., Zoeller 1989, Falkenstein 1990, Callanan 2013, and Vanzo 2018). As a referee points out, it is worth noting that Kant denies being a nativist in the *Inaugural Dissertation* (§8, KGS II: 395), though we must be careful not to assume that Kant was considering all the varieties of innatism discussed today. Thanks to an anonymous reader for *Thaumazein* for the reference.

the concept". This is latent content innatism about concepts, and it can be understood similarly to latent content innatism about beliefs.¹⁸

But sometimes those who attribute innate concepts to Plato mean something stronger than the above. Kenneth Dorter, for example, says that certain concepts are «presupposed by experience».¹⁹ Michael Morgan suggests that concepts are innate and that Plato's argument for this is «transcendental in the Kantian sense».²⁰ And Charles Kahn says that 249b-c of Plato's *Phaedrus* «is best understood as an allegorical anticipation of the Kantian view of a priori concepts as giving unity and structure to sensory experience».²¹ Unlike the previous paragraph, these scholars seem to be speaking of concepts as innate ways of structuring the world. As Kant is often thought to say that space and time are a priori forms of intuition that allow us to perceive the world as spatially and temporally ordered, or that certain categories are necessary for the possibility of experience, they think Plato is saying that innate concepts help *construct* or *shape* the way we experience the world. This view is thus not saying that a specific content is innate, latently or explicitly, but that we have innate cookie-cutters, if you will, for structuring reality.

One problem with this view is that it is perhaps more difficult to understand what it means regarding some of the concepts Plato speaks of, rather than Kant's categories and the a priori forms of intuition, space and time. What exactly is the constructivist concept (of the Form) of beauty? Perhaps the thought is that we would not be able to judge that Helen is beautiful unless we had that concept through which to make the judgement? Similarly, we could not judge that two sticks are equal (in, e.g., length) unless we had an a priori concept of equality through which, or with which, we make that judgement. Though the boundaries between this and latent content innatism are fuzzy, we can perhaps say

¹⁸ E.g., my belief that the cat is on the mat is similar to me having the concept of the cat being on the mat [Moravcsik 1971, 69].

¹⁹ Dorter 1972, 201. Constance Meinwald makes a similar point, noting that her interpretation gives recollection a «'Kantian' Flavor» [2016, 127].

²⁰ Morgan 1984, 248.

²¹ Kahn 1996, 367. Note that this and the previous 2 notes have been from scholars working on the *Phaedo* and *Phaedrus*. Constructivist nativism is less popular in the *Meno*.

that constructivist nativism focuses more on what we *do* with innate concepts, or how we use them, whereas latent content innatism focuses on how the innate content helps us understand what things are.

At any rate, though I do not agree with it, constructivist nativism seems like a live option in the literature, and one we should think of as distinct from content innatism about concepts.

5. *Malebranchian transcendent innatism*

Malebranche was not a nativist, but the fifth type of innatism is somewhat similar to his position that we “see all things in God”. When in a literary mood, Malebranche sometimes describes this idea as a «transportation» to another realm:

While our body walks in the material world, our mind for its part is ceaselessly transported into an intelligible world which touches it and thereby becomes sensible to it (*Dialogues on Metaphysics and Religion*, 1.5, 9).

It is a lot, Aristes, to know how to leave one’s body when one wishes and to elevate oneself mentally into the land of intellects (*Dialogues on Metaphysics and Religion*, 3.1, 31).

So the idea is that the mind has an ability to access another realm, the realm of intelligible objects. In fact, the mind *must* do this, Malebranche thinks, because it does not contain general ideas. Anytime one thinks “this is a tree in front of me”, one’s mind is passively receiving the sensory content of the visual experience, simultaneously accessing the general form “tree”, which is “in God”, and hoping that God “occasionally” synthesizes the two.²²

The nativism I discuss in this section is similar in that it takes Plato to be saying that the mind directly accesses another realm in certain types of thoughts. This is a common description of Plato’s view of knowledge, since he frequently describes knowledge as a “vision” of

²² It is not difficult to see the potential influence on Kant here! For helpful discussions of Malebranche on vision in God, see Jolley 1990, Schmaltz 2000, and Pessin 2006.

the Forms (*Symp.* 210c3-e1, 211d8-212a7; *Rep.* 484c5-d2, 490a8-b6, 500b7-c2, 532e2-a3, 596b6-9).²³ Everyone agrees that Plato is being metaphorical here, since the mind does not literally “see”, but there is a disagreement about what the metaphor means. Some take it as indicative of Plato supporting a type of intellectual vision, or noetic intuition, akin to direct realist accounts of perception.²⁴ Though the mind does not literally see, the metaphor implies that the mind makes a type of immaterial “direct contact” with its objects. On the other side of the debate, some scholars think the visual language is a metaphor for a representational, indirect, or mediated type of contact between the mind and its objects, akin to indirect or representational accounts of perception.²⁵

The latter, representational position will not concern us here. But if one takes the direct access view and combines it with the view that knowledge is innate, one might be led to think that what is innate is an ability to access the realm of Forms. I thus call this view “transcendent nativism”, since it claims something is innate – a bridge or portal, if you will – and that this innate item leads to the possibility of accessing a realm of transcendent objects.²⁶

²³ These seeming statements of the visual account of knowledge in the *Republic* and *Symposium* should be contrasted with other middle-period approximations of it, like those in the *Phaedo* (64e-67b, esp. 64c5-d1, 66a2-4, 66d5-e2; cf. 79d1-2) and perhaps the *Cratylus* (438e3-439b6), in that the former two sets of passages are fairly clearly references to embodied intuition, whereas the latter two are not (or, in the case of the *Cratylus*, not unambiguously) about embodied intuition, but (might) instead refer to a disembodied period of the soul’s existence.

²⁴ See Bengson 2015 for an analysis of intuition modeled on direct realist accounts of perception.

²⁵ In favor of taking the visual language of noetic direct contact literally, see Bluck 1956, Teloh 1981, and Gonzalez 1998. Against this, see Cross 1955, Gosling 1973 (the chapter entitled «Knowledge as Vision»), Fine 1978 and 1992 (to name a few), and Butler 2006 and 2007.

²⁶ I am hesitant to introduce further distinctions with so many in place already, but this view is technically a type of dispositional innatism, since it posits an innate ability, capacity, or disposition. We can distinguish it from the previously discussed dispositional innatism because that leads to the soul acquiring something *within it*, whereas, on this transcendent nativist view, the soul’s ability leads to it accessing something *external* to it.

A number of commentators have made use of this visual model of knowledge in their descriptions of recollection, such that recollection's end goal is a direct, unmediated vision of the Forms. But this alone does not mean they accept the transcendent view. Dominic Scott, for example, says that, when the slave boy recollects in the *Meno*, he is «venturing (back) into the intelligibile world».²⁷ However, since Scott unambiguously thinks there is some content actually present in the soul at birth for Plato, he is not a transcendent innatist (see n. 14 above). But other scholars, to my mind, do seem to intend this transcendent nativist position:

Here I only want to emphasize that recollected knowledge of the Forms is visual: the Forms appear or manifest themselves to us in complete purity. [...] Forms are intersubjective entities in that they are accessible to whomever achieves philosophical vision.²⁸

Tout processus d'apprentissage [as recollection] trouve son terme dans une connaissance qui est une intuition s'apparentant à une vision.²⁹

[Plato fails] to inform us whether, when the Ideas are recollected, our souls are still incarnate *or* are fully discarnate (along some analogue to astral projection) *or* a bit of both. Plato does not answer the question “where are we when we think?” despite the spatial metaphors which permeate his metaphysics and epistemology.³⁰

Henry Teloh and Luc Brisson, then, both seem to accept the transcendent nativist view (assuming they both think knowledge is innate), whereas Richard Mohr is on the fence between it and a representational view.³¹

²⁷ Scott 2015, 92, n. 15. Cf. Gulley 1962, 111.

²⁸ Teloh 1981, 104 and 108.

²⁹ Brisson 2007, 201.

³⁰ Mohr 1984, 35.

³¹ Mohr's position is more complicated (and interesting) than I am letting on here. He more or less goes through the horns of this quotation and argues that the soul makes a direct acquaintance with «Ideal memory traces» that have «the same status as the Ideas themselves» [1984, 40].

So, while I do not think anyone has carefully argued for this nativist position, I do think some scholars hold the view, others metaphorically (and perhaps misleadingly) suggest it through their terminology, and that others consider it a live possibility.³²

6. *Condition innatism?*

The sixth and final type of innatism I want to discuss is “condition innatism”. In this section, I briefly explain what condition innatism is and argue that it is difficult to differentiate it from latent content innatism.

Gail Fine describes the distinction between it and content innatism in the following way:

When we ask whether Socrates took himself to have knowledge, we are speaking of knowledge in the first way [as a cognitive condition]. When we speak of the sum of human knowledge, we are speaking of it in the second way [as a cognitive content].³³

The difference is not entirely clear, but I believe condition innatists posit innate propositional attitudes paired with the contents, and content innatists posit only innate content. The current explicit state of belief that *p* has two components: the content *p*, and the attitude or condition of “believing” (some sort of taking-to-be-true propositional attitude directed towards *p*).³⁴ Condition innatism, I think, posits *both* the content and the attitude latently, innately directed towards that content, whereas content innatism posits only the innate content.

To see this, consider how Bronstein and Schwab describe condition innatism:

³² Gosling 1973, 120-39 argues against the direct contact interpretation of Plato’s visual metaphors, but thinks it might be present (if it is present anywhere) in the *Phaedo*’s notion of comparing the sensibles to the Forms.

³³ Fine 2014, 141.

³⁴ Rowett 2018 and Fine 2021b give this as the basic sense of “belief”.

Human beings are born in the cognitive condition of knowing, in the sense that human embodied souls possess latent innate states of knowledge. The goal of recollection is to make one's latent knowledge explicit.³⁵

On the other hand, this is how they explain content innatism:

Human beings are born with innate cognitive contents, in the sense that human embodied souls innately possess truths that can be the contents of states of knowledge but do not exist innately in the soul as the contents of such states. The goal of recollection is to take up these contents in such a way that one knows them (again).³⁶

If “cognitive state” means something like “content + propositional attitude directed towards it”, the condition innatism seems like what I described it to be above.

I have two main reasons for my skepticism about this view. First, no one has, in my view, clearly defended condition innatism as an interpretation of Plato's innatism. And second, I find the position makes it difficult to differentiate condition innatism about belief or knowledge from latent content innatism about belief or knowledge. I will now treat these points in turn.

Both Fine and Bronstein and Schwab discuss the view, but they do not endorse it. However, they both think that condition innatism is the dominant view in the literature.³⁷ So why do I say no one has argued for the view? Consider the scholars they cite as finding condition innatism in Plato's theory of recollection.³⁸ Though I have not checked all of these references, those I have say nothing about innate propositional attitudes or how we should construe the innate knowledge they discuss. Bluck, for example, simply speaks of latent knowledge: «Socrates then answers Meno's objection to search for something “unknown” by showing that it is possible that we have *latent* knowledge, which may be aroused into

³⁵ Bronstein and Schwab 2019, 393.

³⁶ Bronstein and Schwab 2019, 394.

³⁷ Fine 2014, 146-47 and Bronstein and Schwab 2019, 393.

³⁸ See Bronstein and Schwab 2019, 393, n. 2.

our consciousness by association of ideas».³⁹ And Lesley Brown says only that,

en opposition à Irwin et à Vlastos, je montrerai que Platon affirme qu'il y a un savoir inné dans l'âme (voir ci-dessous p. 615). Je montrerai également que, selon Platon, l'âme n'a jamais été consciente de ce savoir: il s'agit, en effet, d'un savoir ou d'une connaissance virtuelle.⁴⁰

Neither of these, and none of the other references I have checked, gives us a reason to suppose that the *condition* of knowing is innate (a special propositional attitude of knowing), instead of a *content* that just happens to be called “knowledge” by Plato.⁴¹ But, admittedly, there is nothing stopping us from interpreting these scholars as positing innate propositional attitudes or *conditions*, either.

One thing that Bronstein and Schwab, and perhaps Fine, might mean by condition innatism is the view that verbs, or mental acts, are posited as innate instead of (or in addition to) cognitive contents. Many of the texts Bronstein and Schwab cite, both in Plato and the secondary literature, use the verbs “know” and “knowing” or “believe” and “believing” instead of the nouns “knowledge” and “belief.” Bronstein and Schwab associate the verbs with the *conditions*, and the nouns with the *content*.⁴² But regardless of their reasons for thinking this, and regardless of whether they are right that Plato often obeyed this distinction, it obviously does

³⁹ Bluck 1961, 9. The reference to 272 is somewhat closer to their «condition innatism», but still does not need to be construed in that way. For this speaks of knowledge as latent «perfect apprehension». But it is not clear how strictly Bluck intends this phrase, i.e., whether he means to imply an innate latent *attitude* over, or in addition to, an innate latent *content*.

⁴⁰ Brown 1991, 604. Neither page 605, which Bronstein and Schwab cite, nor 615, which Brown cites, say anything about innate propositional attitudes or how we should understand this innate *virtuelle savoir* or *connaissance*.

⁴¹ I do wonder if Cornford 1952, 49, who seems to imply that a *sense of certainty* is innate, would opt for condition innatism. But it is far from clear that Cornford actually thinks this, his position is not discussed by Fine or Bronstein and Schwab, and there is little reason to think Plato is concerned with an innate sense of certainty in any of the three main discussions of recollection.

⁴² Bronstein and Schwab 2019, 404-07.

not follow that all of the other cited scholars obeyed it. One who says “knowing is innate” does not necessarily mean that a cognitive attitude is innate over some content called knowledge being innate. Indeed, it is difficult to see what an innate cognitive attitude could even mean.

John Searle, in a paper on the difference between conscious and unconscious mental states, has argued that unconscious propositional attitudes cannot be differentiated from each other.⁴³ The nature of *hope* or *belief* or *fear*, etc., only makes sense at the level of consciousness; when unconscious, there is nothing for these states to be:

The notion of an unconscious intentional state is the notion of a state which is a possible conscious thought or experience. There are plenty of unconscious phenomena, but to the extent that they are genuinely mental they must in some sense preserve their aspectual shape even when unconscious, but the only sense that we can give to the notion that they preserve their aspectual shape when unconscious is that they are possible contents of consciousness.⁴⁴

Unconscious mental states have no nature in themselves, but only a forward-looking nature as possible conscious states. But if that is true, then there is no way to differentiate condition innatists about different objects besides appealing to what they happen to be *called*. The innate condition of belief is just content that is called *belief* that can one day become the content of a conscious, explicit, occurrent state of belief. The innate condition of knowledge is just content that is called *knowledge* that can one day become the content of a conscious, explicit, occurrent state of knowledge. And that means that there is no difference between condition and content innatism. Thus, like explicit content innatism, I do not consider condition innatism to be a live option either.

⁴³ Searle 1991, esp. 56-57.

⁴⁴ Searle 1991, 57.

7. *Varieties of innate objects*

So far, I have said little about the possible innate objects in Plato's theory, instead discussing the different *ways* things can be innate. I will now briefly discuss the various possible types of innate objects. The most commonly proposed innate objects in Plato's theory of recollection have been knowledge, beliefs, and concepts.⁴⁵ But it is not difficult to see the problem in merely stating that Plato thinks knowledge is innate without specifying what conception of knowledge we are working with, especially given the history of post-Gettier epistemology. Would, then, true belief, justification, and an extra, Gettier-appealing feature all be innate? What would the latter look like, innately, and how should we construe innate justification? Or is knowledge in the sense of acquaintance innate, and if so, what is that?

Similar problems arise with regard to beliefs and concepts (which, although not as well-known as analyses of knowledge, are just as interesting and controversial). For beliefs can be construed as mental representations (particulars that can be in one's mind without one being aware of them), as occurrent behaviors (datable events that occur

⁴⁵ The following commentators argue for innate knowledge in the theory of recollection: Cornford 1952, 50; Bluck 1955, 8; 1961, 9; Scott 1987; 1995; 2006; Brown 1991; Dimas 1996, 29; Gonzalez 1998, 272-274; Matthews 1999, 62-63; Sheffield 2001, 25; Ionescu 2006, 164; Ebrey 2014, 18-19; Bronstein 2016, 14.

These scholars argue that Plato is committed to innate true belief: Gulley 1954, 194; Moravcsik 1971, 59; Bedu-Addo 1983, 230; 1984, 5; Gentzler 1994, 281, with n. 14; Cowie 1999, 14-15, with n. 9; Bobonich 2002, 549, n. 6. Dancy [2004, 231-34] seems to think both knowledge and true beliefs are innate.

And here are some scholars who have upheld a theory of innate concepts: Dorter 1972; Morgan 1984; Bostock 1986; Osborne 1995, 228; Kahn 1996, 162-64 and 367.

Others have not specified what specific object they think is innate, but have emphasized that content is innate [Caston 2001, 42; Williams 2002, 137; Wolfsdorf 2011, 60].

Finally, some have specified that no object is innate, or that just a disposition or potentiality is innate (e.g., Fine 1992).

It should go without saying that these scholars may be working with drastically different conceptions of knowledge, belief, concepts, innatism, etc., when they merely say that one of these is innate.

at a moment in time), or as dispositions to undergo these behaviors.⁴⁶ And concepts can be construed as mental representations (similar to the representational view of beliefs), as “third-world” entities (Fregean senses or Russellian concepts), or, as we’ve seen, as a sort of experience-shaping hardware.⁴⁷

The different types of innatism can thus be paired with different types of innate objects, and the different types of innate objects can be construed in various ways. One can opt for constructivist nativism, for example, and call that “innate knowledge”, or one can attribute “innate beliefs” to Plato and mean something like innate dispositions to believe things. Unfortunately, most commentators have used these terms so loosely that it is hard to see which sense they intend by them.⁴⁸ So it is accordingly unclear what the many people in the literature have meant by attributing to Plato a theory of innate knowledge, beliefs, or concepts.

The work in this field is therefore, to my mind, just beginning. We need to figure out what objects are innate in each dialogue, *and* what way they are innate. Then, if our answers differ from one dialogue to the next, we must ask why, and try to construct a theory explaining it. But these are tasks for other scholars, in other works. My main goal in this paper has been to introduce new readers to the various types of innatism in Plato scholarship, to formally articulate constructivist and transcendent innatism (distancing the former from latent content innatism about concepts), to critique condition innatism, and to discuss the various types of innate objects. With these distinctions in place, the real work can now begin.

⁴⁶ See Jolley 1990 for something similar to these three types of beliefs (though Jolley speaks of «ideas»). There are, of course, many other conceptions of belief as well. See Schwitzgebel’s *SEP* article [2006] on ‘Belief’ for further discussion.

⁴⁷ The first view would be innate concepts *as* latent content, and the third view would be innate concepts as constructivist nativism. The second view would be concepts as Forms. Like belief, there are also additional conceptions of concepts. See Margolis and Laurence’s *SEP* article [2005] on «Concepts» for some additional considerations. Helmig 2012 provides a survey of different views of concepts throughout the history of Platonism.

⁴⁸ When I say «most», note that there are hundreds of passing references to «innate knowledge» or «unconscious knowledge» in the literature that are not cited in this paper.

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Keywords

Plato; innatism; recollection; knowledge; epistemology

Abstract

This article considers six types of Platonic Innatism and compares them to the nativisms of early modern writers. I first dismiss a type of innatism similar to the target of the first book of Locke's *Essay concerning Human Understanding* and then discuss four types of innatism that might be considered "live options" for the one Plato employs in his theory of recollection: a Kantian "constructivist" innatism, a Cartesian "dispositional" innatism, a Leibnizian "content" innatism, and a Malebranchian "transcendent" innatism. Finally, in closing, I discuss "condition innatism". Though this last position is frequently referenced in Platonic scholarship, I argue that the position is incoherent.

Douglas A. Shepardson
Fordham University
E-mail: Dshepardson@fordham.edu

IACOPO CHIARAVALLI

THE IRONY OF ESSENCE:
PROCLUS AND DESCARTES ON GEOMETRY

TABLE OF CONTENTS: 1. *Descartes' Platonism: between Frege and Proclus*; 2. *Mathematics is said in many ways*; 3. *The Art of the Geometrician*; 4. *Conclusion: Recasting Platonism in Modernity*.

1. *Descartes' Platonism: Between Frege and Proclus*

A direct reference to the ancient tradition is one of the main features of the birth of modern science. As starting point of his 1591 *Introduction to the Analytical Art* François Viète choses a reference to Antiquity: «In mathematics there is a certain way of seeking the truth, a way which Plato is said to have discovered, and which was called “analysis” by Theon».¹ Similarly Salviati states in the first day of Galilei's *Dialogue on the Two Chief World Systems*: «Plato himself admired the human understanding and believed it to partake of divinity simply because it understood the nature of number, I know very well; nor am I far from being of the same opinion».² Shifting the reference to Plato's successors, at the beginning of his *Harmony of the World* Kepler shows all his admiration for the Platonic tradition by stating that: «If [Proclus] had let to us his commentary to the tenth books of Euclid as well, he would both have freed our geometers from ignorance, if he had not been neglected, and relieved me totally from this toil of explaining the distinguishing features of geometrical objects».³ In doing so, the rhetorical strategy of the Moderns is to present their new science as a restitution and accomplishment of what Plato and his followers started. Inevitably, this rhetoric created the lasting prejudice that the modern

¹ Viète 1968, 320. On Viète's notion of analysis see Panza 2007.

² Galilei 1967, 11.

³ Kepler 1997, 9. On Kepler and Proclus see Claessens 2011.

understanding of the world can be read as a transformed, but loyal form of Platonism.⁴

A first difficulty faced by this kind of interpretation is that Platonism is a complicated and controversial concept. Leaving aside the open reference to the Platonic dialogues or to Plato's self-proclaimed heirs in Late Antiquity, it seems quite impossible to detect a stable core of doctrines which represent the Platonic teaching *par excellence*.⁵ In this puzzling landscape mathematics seems to ensure a safe point of departure. As the previously quoted passages show, at the beginning of modern times the reference to the Platonic tradition was particularly strong in those authors engaged in building a new understanding of mathematics. The alleged confidence in our post-Fregean gaze – with a Platonic, i.e. realistic, conception of mathematical entities – let the connection between the modern mathematical interpretation of nature and Platonism seem plausible.⁶ This made it possible to include within the tradition of Platonism the majority of authors who dealt with mathematics at the very beginning of its modern history, even in the case where the explicit reference to Platonic conceptuality is not as strong as in Kepler or Galilei. It is precisely the case of Descartes, who says in the Fifth Meditation:

The truth of these matters [mathematical ideas] is so open and so much in harmony with my nature, that on first rediscovering them it seems that I am not so much learning something new as remembering what I knew before [*ante sciebam reminisci*]; or it seems like noticing for the first time things which were long present within me although I had never turned my mental gaze on them.

⁴ This kind of interpretation is one of the grounds of the contemporary history of science, since it can be found in the groundbreaking Koyré 1933 and 1965. However, from this point of view, Koyré is a diligent student of Natorp, Cassirer and Husserl. See Natorp 1882, Cassirer 1947 and Husserl 1970.

⁵ Extremely instructive on the many possible interpretations of a “Platonic” framework in 16th century is Galluzzi 1973.

⁶ The problems of this connection are well explained by Klein 1985, Funkenstein 1986 and Ferrarin 2014.

But I think the most important consideration at this point is that I find within me countless ideas of things which even though they may not exist outside me still cannot be called nothing; for although in a sense they can be thought of at will, they are not my invention [*non tamen a me finguntur*] but have their own true and immutable natures [*suas habent veras et immutabiles naturas*]. When, for example, I imagine a triangle [*triangulum imaginor*], even if perhaps such figure does not exist, or has never existed, anywhere outside my thought, there is still a determinate nature, or essence, or form of the triangle which is immutable and eternal, and not invented by me or dependent on my mind. This is clear from the fact that various property can be demonstrated of the triangle [...]; and since these properties are ones which I know clearly recognize whether I want or not, even if I never thought of them at all when I previously imagined the triangle [*cum triangulum imaginatus sum*], it follows that they cannot have been invented by me.⁷

Our post-Fregean understanding of mathematics inevitably leads us to read these lines as an endorsement of a realistic interpretation of mathematical objects. Actually, this is the main interpretative option for many Cartesian scholars.⁸ These readings do not take into account the actual features of Cartesian mathematics. On the contrary, they read Descartes according to our contemporary notion of Platonic realism in mathematics which, *ça va sans dire*, has nothing to do with the cursory and scattered discussions on mathematics in Plato's dialogues. As I hope to show, this account is untenable if we look at the Fifth Meditation as a presentation of the ontology presupposed by Cartesian *Geometry*.

However, there is also another way to look at the problem. It consists in reading Descartes' ontology of mathematics against the background of the 16th century debate over the nature of mathematical knowledge,⁹ the so called *quaestio de certitudine mathematicarum disciplinarum*. The key issue in the debate was to establish the explicative capacity of

⁷ AT VII, 63.25-64.24; Descartes 1995, 44-45.

⁸ Gueroult 1953, Kenny 1970 and Scribano 2006 are the most relevant. See the critique of this approach in Schmaltz 1991.

⁹ The most interesting and compelling account is in Mancosu 1996.

mathematical demonstrations, and the related connection to physics and metaphysics.¹⁰ The *quaestio* is an incredibly rich attempt to recast the complex Scholastic reflection on mathematics, following the innovations which mark the peculiarity of the 16th century discussion. From the 13th to 16th century, Western mathematics faced the deepest transformation in its history with the rediscovery of the Greek geometrical and arithmetical heritage, together with the introduction of the Arabic technique of calculus called “algebra” as its driving force.¹¹ This profound change raised the need of a new understanding of the structural grounds of mathematical knowledge and practice. On this point, modern intellectuals faced the trickiest problem for everyone who reads Ancient mathematical texts: the almost complete lack of methodical and epistemological explanations.¹² Consequently, the texts where they could find indications concerning the conceptual background of Ancient Greek practices obtained a crucial role of mediation. After his publication in 1533 and Latin translation in 1560, Proclus’ *Commentary* to the First Book of Euclid’s *Elements* emerged as the main source of historical information, methodological organization of the Ancient mathematical practice, and ontological explanation of the nature of mathematical entities.¹³ Especially his critique of the Aristotelian account of mathematical objects as abstracted from the senses rapidly became one of the crucial reference in the debate over the nature of mathematical knowledge. It was used to criticize the Thomist account of mathematics as a product of a formal abstraction from the sensible objects, which was extremely widespread in the Scholastic culture.¹⁴ In other words, the attempt to substitute Aristotle’s authority with that of Proclus was the first step which gave rise to the debate over the nature of mathematics.

If this explains the presence of a Platonic conceptuality in the debate, nothing has yet been said about Descartes. He studied Euclid thanks to Clavius’ commentary which starts with a direct reference to Proclus

¹⁰ De Pace 1992 and, more recently, Higashi 2018.

¹¹ For a good introduction to this topic see Catastini, Ghione, Rashed 2016. The best books on the rise of Western algebra are still Klein 1968 and Mahoney 1973.

¹² On this point see the interesting remarks in Knorr 1993.

¹³ Cf. Helbing 2000.

¹⁴ On Aquinas’ understanding of mathematics see Maurer 1993 and Schultz 1994.

and Plato¹⁵ and he was acquainted with Kepler's texts where Proclus is often taken as a point of departure for the discussion of the ontology of mathematics.¹⁶ Nevertheless, it is impossible to state if Descartes actually read Proclus. Probably he did not. However, scholars frequently refer to some crucial affinities. This would especially be the case with Descartes' anti-Aristotelian account of mathematics, according to which mathematical objects are given to the mind without any reference to the sense-perception. Another topic, where a connection has been detected, is the role of the imagination in mathematics. In particular, Proclus is usually credited as the inventor of the so called "productive imagination" (whatever this may mean when detached from its Kantian context). This conception is usually coupled with Descartes' analysis of imagination in the *Rules for the Direction of the Mind*.¹⁷ According to such a view,¹⁸ Descartes' alleged mathematical Platonism would be the heir of the Platonic tradition in the sense that it is a renewal of Proclus' interpretation of the Euclidean *Elements* under many fundamental aspects.

2. *Mathematics is said in many ways*

Mathematics has a history. Like every other cultural history, it is a complexity of attempts, breaks, and *cul-de-sac*, with the temptation to speak of itself as a continuity. These trivial statements are usually forgotten when we try to understand the kind of conceptuality which philosophers make use of in trying to give an account of mathematical practice. Surely, mathematics and philosophy of mathematics are not

¹⁵ See Rodis-Lewis 1987 on Clavius as Descartes' source. On Clavius' mathematical epistemology cf. Claessens 2009.

¹⁶ On Kepler's influence on the formation of Cartesian thought see Gäbe 1972.

¹⁷ Especially Bouriau 2002 and Rabouin 2009.

¹⁸ Let me note that this view does not exist in the organic and unitary way I described. The relationship between Proclus and Descartes is usually seen through the lens of a specific topic like the epistemic role of the imagination in mathematics, the debate on the concept of *mathesis universalis*, Descartes' relation to the partisans of the Proclean account (especially Barozzi and Biancani) and so on. See the literature quoted in the previous footnotes for more specific references. However, the most organic and complete confrontation is Nikulin 2002.

the same. They have their own different historical traditions and not always they mutually converge. Nevertheless, this circumstance does not free us from a careful enquiry concerning the kind of mathematics which philosophers are dealing with.

Unlike the common historical *vulgata*, Ancient mathematics was perfectly aware of the universality of the methods of deduction and demonstration.¹⁹ One of its central questions was how the general dimension of the operational practice could be related to entities conceived as singular and individual. This made up the ontology of mathematical entities, its capacity to sustain the demand of generality of the practice, and our capacity to keep in touch with it, the actual *cruces* of ancient thought on the topic.²⁰ Despite the fact that these are the leading questions even in Proclus' case, his approach is different. In fact, the presupposition for an insight into the ontology of the object of mathematics is a correct understanding of its *practice*. Proclus is first and foremost interested in explaining the functioning of the working activity of the mathematician or, more narrowly, of the geometrician as Euclid presents it in the First Book of the *Elements*.

Despite the attempt to create a continuous flux of derivation, Euclidean methodology is clearly divided into two different and mutually irreducible practices. The first one requires showing that a certain property belongs to an entity, while the second one requires the execution of a multiplicity of different actions. Euclid does not provide a classification of these two procedures, but they are clearly distinct from each other by the famous ending rhetorical formulas ὅπερ ἔδει δεῖξαι ("this had to be shown") and ὅπερ ἔδει ποιῆσαι ("this had to be done"). Following a tradition as old as Archimedes, Proclus names the first θεώρημα ("theorem") and the second πρόβλημα ("problem").²¹ He makes several attempts to define this couple of terms, and one of the most accurate is the following:

This second part [which follows the principles], in geometry, is divided into the working out of problems and the discovery of

¹⁹ See Acerbi 2011.

²⁰ On this topic see Klein 1968.

²¹ Cf. Mugler 1958 and Acerbi 2010.

theorems. It calls “problems” [προβλήματα] those propositions whose aim is to produce, bring into view or construct what in a sense does not exist and “theorems” [θεωρήματα] those whose purpose is to see, identify, and demonstrate that something belongs or not. Problems require us to construct a figure, or set it at a place, or apply it to another, or inscribe it in or circumscribe it about another, or fit it upon, or bring it into contact with another, and the like; theorems endeavor to grasp firmly and bind fast by demonstration the attributes and inherent properties belonging to the objects that are the subject-matter of geometry.²²

The lack of a unitary category describing the multiple kinds of “doing” in the problem is noteworthy. If the activity connected to a theorem is always a demonstration, the problem demands different actions, which are impossible to reduce to a unique practice. Thus, the theorem has a direct and univocal reference, while the problem is mainly defined by its “not being a theorem”. According to Proclus the impossibility to find a unity in the problem is the sign that it does not have a stable ontological reference. Thus, the problem depends on the theorem.

It is important to stress that such a hierarchy does not find any correspondence in the Euclidean text. The *Elements* is a masterpiece of epistemic balance and ontological reticence. However, what is clear is that the geometrician must always be respectful of the different kinds of entities adapting the methods to them.²³ However, Euclid’s silence leaves the door open to more specific interpretations of the nature of the mathematical entity. Thus, Proclus can introduce a hierarchy between the two procedures, which are valued according to their loyalty to the being of a separated and self-sustained form located in the νοῦς.²⁴

Following the book VII of Plato’s *Republic*,²⁵ Proclus strongly

²² In Eucl. 201, 3-15; Proclus 1992, 157-158 (modified translation).

²³ On this point see Lachterman 1989 and Mueller 2006.

²⁴ More generally, on the relation between Euclidean geometry and Proclus’ metaphysics see Breton 1969, Charles-Saget 1982 and Schmitz 1997.

²⁵ Cf. *Rep.* 527b4-5 [Plato 1991, 206] where we are told by Socrates that geometry «is for the sake of knowing what is always, and not at all for what is at any time coming into being and passing away». This implies that geometricians are wrong when they «speak as though they were men of action and were making all the arguments for the

separates the ontology of mathematics from the epistemological practices of the working mathematicians. Thus, the distinction between theorem and problem coincides with different ways according to which the soul can deal with the separate noetic entity. In particular, the problem is the way in which the separate and intangible entity is brought back to the conditions under which the soul is able to know. That means that the soul should be provided with the capacity of producing the visible appearance of the object. This capacity is what Proclus calls φαντασία, imagination. Actually, «it is in imagination that constructions, sectionings, superpositions, comparisons, additions, and subtractions take place».²⁶ The imagination of the soul is the place where the immutable forms receive a generation which does not belong to their essence or being. Thus, in a sense Proclus' notion of imaginative activity is productive. It has precisely the task to make visible the geometrical entity through its fictional generation. Consequently, generation and production are not acts of the imagination as such, but its contents. If we want to say that there is a production in Proclean imagination, this is a production of the figural visibility of the form and *not of the entity*. However, the possibility to fill the gap between the intangible entity and the imaginative generation requires the intervention of a different capacity which plays a crucial role in Proclus' understanding of mathematics: the διάνοια. However, in order to understand the meaning of this concept in Proclus and its difference from its original Platonic use in the *Republic*, we have to be extremely clear on the mathematical phenomenon which its employment has to explain.

As we will see later when dealing with Descartes, modern geometry is a unitary field. Its unity finds expression in the language which modern mathematics uses in order to identify kinds of objects which, in ancient thought, belong to different domains of being. This language is algebra, which was completely unknown to ancient Greek mathematicians. Basically, algebraic calculus reduces every possible enquiry concerning different entities to a matter of ratios and proportions making them the

sake of action, uttering sounds like squaring, applying, adding, and everything of this sort» (527a7-9).

²⁶ In Eucl. 78.25-79.1; Proclus 1992, 64.

unitary domain of mathematics.²⁷ On the contrary, ancient geometry can be differentiated into two, mutually irreducible elements: the image and the discourse thanks to which the epistemic power of the image can be shown.²⁸ Nevertheless, the ancient enquiry on the nature of geometry was first and foremost focused on the ontology of the entity pictured in the image. More clearly stated, the problem was mainly to understand the way of being of a plane figure or a solid discussing their ontology and our capacity to focus on them *without taking into account the need of geometry of a discursive articulation of the content of the image*. Of course, the point here is not the logical functioning of language in the demonstration (as Aristotle does in the *Analytics*, for example). Ancient geometry and, more in general, ancient mathematics is not reducible to a linguistic field. Thus, the crucial point is to understand the mutual interplay between image and language.

Proclus' argument radically assumes this division in order to articulate the relation between the knowing soul and the noetic form. Actually, the soul can have two different kinds of representation of the intelligible geometrical essence:

Geometry asks the question “What is it?” and that in two senses: it wants either the definition and notion or the actual being of the thing [τὸν λόγον ζητεῖ καὶ τὴν νόησιν, ἢ τὴν οὐσίαν αὐτὴν τοῦ ὑποκειμένου]. I mean, for example, when it asks: “What is the homoeomeric line?” it wishes to find the definition [τὸν ὅρον] of such a line, namely, “the homoeomeric line is a line all of whose parts fit upon each other” or to grasp the actual species [ἀντὰ τὰ εἶδη] of homoeomeric line, that is, the straight line, the circular line, or the cylindrical helix.²⁹

²⁷ One of the best examples of the partisanship of modern mathematics for a unitary field is its repulsion for the image. See Lagrange's programmatic declaration at the beginning of his *Mécanique analytique* [Lagrange 1787, 2]: «In this work you will not find any image [point de Figures]» (my translation).

²⁸ See *Rep.* 510d5-6: «you also know that they use visible forms and make their arguments about them [τοῖς ὁρωμένοις εἶδεσι προσχρῶνται καὶ τοὺς λόγους περὶ αὐτῶν ποιοῦνται]».

²⁹ In *Eucl.* 201.18-202.1; Proclus 1992, 158 (modified translation).

Understanding the nature of a thing in mathematics is a twofold process. First, we have the λόγος of the entity discovered by the soul's διάνοια, and then its representation as a figurative entity in the φαντασία. If the first kind of understanding ensures the full comprehension of what we are operating with, the second enables us to manipulate geometrical entities. In other words, Proclus articulates in two different faculties what in Plato's *Republic* was included in the διάνοια alone. In his account, the διάνοια refers just to the level of the logical discourse and language, whereas the production of the image is deputized to the activity of the imagination. In doing so, Proclus is systematizing the rare passages where Aristotle shows the crucial role played by the imagination in focusing on the geometrical object.³⁰ However, according to Aristotle the imagination lets the soul detach the figure from the other sensible qualities of the physical substance, while in Proclus the imagination acts by following the λόγος developed by the διάνοια with no relation to the images derived from the senses.³¹

The dynamic between discursive reasoning and imagination is pictured well in the mutual intertwining between theorem and problem:

But again it is impossible to say anything about the construction [συστάσεως] of the parallelograms, or about their equality, without the theory of parallel lines. [...] Hence of necessity he [Euclid] begins his instruction with parallel lines and, after proceeding the short way, turns from them to theory of parallelograms, using as a connecting link between these two portions of the *Elements* a theorem that seems to be examining a property of parallel lines but in fact furnishes the primary genesis [γένεσιν δὲ πρῶτη] of the parallelogram.³²

The theorem sets off the property of an entity, which becomes the main parameter for the creation of an image outlined according to that property. Thus, the λόγος in discursive reasoning determines the boundaries of the

³⁰ Of course, this does not mean that Proclus reads Aristotle without any further mediation, cf. Blumenthal 1977 and Mueller 1990. In general, on the background of Proclus' philosophy of mathematics, see Mueller 1987a and O'Meara 1991.

³¹ Cf. Saget 1971 and Nikulin 2010.

³² In Eucl. 355, 1-13; Proclus 1992, 276.

activity of the imagination. In this case, figuring a parallelogram means shaping a figure, thanks to parallel lines with that precise property. Their coming into being is a matter of “projectioning” (προβάλλειν, the same stem from which πρόβλημα derives) the λόγοι onto the imagination.³³ What is important to underline here is that the image refers directly to the discursive definition and *just indirectly to the form* present in the νοῦς. That is, if in Plato’s account the function of the διάνοια is that of *making explicit* that the sensible image is referred to a noetic entity, in Proclus the discursive reasoning represents the *ontological mediation* between the form and the image. Another interesting consequence is that the role played by the διάνοια in Proclus complicates the copy-model metaphor usually taken as the basic Platonic explanation of the relation between the sensible and the noetic realm. Actually, the image is figured out *according to the definition*, i.e. observing the noetic features explicated in it. That means precisely that the λόγος and the image do not reflect each other. Their mutual relationship is not that of a copy to its model, but that of two different representations of the same entity. Their unity and their capacity of a mutual reference is grounded in their common relation (more mediated or not) to the same form. Thus, Proclus can include in the same ontological hierarchy the irremovable inner duality of ancient geometry.

3. *The Art of the Geometrician*

Speaking about the εἶδη looked by the intelligence, Proclus names them the «immutable and eternal forms».³⁴ It is a remarkable coincidence that Descartes makes use of a similar expression in the Fifth Meditation. Referring to the mathematical object the mind finds in its imagination, he points out that «there is still a determinate nature [*quaedam ejus natura*], or essence, or form of [it] which is immutable and eternal».³⁵ In order to understand what these traditional Scholastic concepts could

³³ See Mueller 1987b.

³⁴ In Eucl. 13, 25-26; Proclus 1992, 12 (modified translation).

³⁵ AT VII, 64, 15-16; Descartes 1995, 45.

mean in the context of Cartesian metaphysics,³⁶ it is crucial to consider Descartes' mathematical work. Actually, the entire Second Book of the *Geometry* is explicitly devoted to an illustration of the *nature* of the curved lines. Therefore, it is one of the best candidates for understanding Descartes' strange expressions in the Fifth Meditation.³⁷

Before looking specifically at the curves, we have to sketch briefly the outline of Cartesian geometry. From the beginning, Descartes makes clear the distance of his approach from that of the Ancients: «Any problem in geometry can easily be reduced to such terms that a knowledge of the lengths of certain straight lines is sufficient for its construction».³⁸ First, a detail: a text, whose title is *The Geometry*, does not present any reference to the theorem as one of its main procedures of inquiry and no justification is given for its absence. Descartes just leaves it aside in order to offer to the problem the throne of the reign of geometry. The break with the Ancients could not be clearer.

This means that Cartesian geometry is a unitary field without gaps in itself. Its unity is not given by the ontological stability of the entity it deals with, but by its “being-a-problem” for the geometrician. However, a problem is an epistemic situation whose method of solution can be found by the mind. Thus, “being-a-problem” and “being-solvable” thanks to a set of rules are the same.³⁹ A Cartesian geometrical object is not a self-standing entity, but the outcome of a process of discovering the solution to a given situation. In this sense, it is an “object” as far as it is the solution to a problem. Otherwise, it can be used as a tool in order to solve other problems becoming part of the instruments which the knowing mind can make use of. Of course, this implies that what in Proclus' perspective was a category thanks to which a partial aspect of the practice of the geometrician could be classified in Descartes' eyes becomes the constitutive feature of the *purae Matheseos objectum*.⁴⁰

³⁶ A good analysis of the text of the Fifth Meditation can be found in Doubouclez 2019.

³⁷ As far as I know, the only attempt to read the Fifth Meditation thanks to the *Geometry* is Lachterman 1986.

³⁸ AT VI, 369, 4-7; Descartes 1954, 2.

³⁹ On the notion of problem in Descartes' *Rules* see the Appendix to Ciffoletti 1992.

⁴⁰ For this expression see AT VII, 74, 2.

Descartes' attempt at unifying the realm of geometry grounds one of the most astonishing passages in his *Geometry*, namely his distinction between geometrical and mechanical curves.⁴¹ This distinction is usually considered from the point of view of the movement of the mind. Geometrical curves are those which «can be conceived of as described by a continuous motion or by several successive motions»,⁴² while those which «must be conceived of as described [*on les imagine décrites*] by two separate movements whose relation does not admit of exact determination»⁴³ are the mechanical ones. Nevertheless, the movement is not the basic phenomenon for the distinction. The capacity of figural imagination to make visible the curves with a unique movement is the fruit of the power of the mind to build a method including all the relevant parameters for the construction of the curve (i.e. for the solution of the problem). That means that the construction of the curve must always be the figural production of the setting up of an *equation*. More clearly, the *nature* of a curve is determined by its relation to its method of production, i.e. to its equation. Thus, a curve, which cannot be traced back to an equation or to a set of mutual related equations, is just a fictional entity and therefore it is not part of the geometrical field. In doing so, Descartes is not distinguishing between two different objects in geometry. He is separating in its historical tradition what was truly geometrical and what was not. In other words, the Second Book of the *Geometry* is devoted to distinguishing in the geometrical field what is the fruit of a truthful aggregation from what is a barely fiction of the mind. Its similarity with the question faced in the Fifth Meditation is evident.

The notion of equation is crucial in Descartes' geometrical calculus. It is obtained by relating the elements of a problem to two common measures (the axes) and creating a superior relation between these two. Thus, the previous unrelated and unknown elements are solved into ratios and proportions among knowable parameters. It is important to note that the equation is *a translation of the initial*

⁴¹ The classic interpretation of this distinction can be found in Vuillemin 1960. For a different approach see Chiaravalli 2020.

⁴² AT VI, 390, 1-3; Descartes 1954, 43.

⁴³ AT VI, 390, 13-15; Descartes 1954, 44.

conditions of the problem into a common measure. In other words, it is the problem in itself, yet exposed in a way according to which the elements (which should be fully calculated in order to obtain a complete solution) are designated as such (what we usually call the “unknowns” of an equation). Thus, the equation points to all the geometrical entities defined by those parameters, and the mind is aware of the possibility of completely calculating the outcomes. Its full calculation is a matter of circumstances. The passage from the pure possibility of the equation to the actuality of the outcomes is just the result of a further specification of the invariant represented by the relation among known and unknown terms. What represents the fixed structure of the Cartesian mathematical object is the relational elements among its parts. Therefore, the form or essence of the Fifth Meditation finds its first reference in the formula of the equation. To put it more clearly, in the equation we can find the first Cartesian attempt to reform the notion of generality, which was traditionally represented by the concepts of essence or form.

Of course, this does not mean that the equation *is* the essence. Actually, we have to resist the temptation to consider the equation as the general element, whereas the properly geometrical construction would be its singular representation.⁴⁴ We have to distinguish carefully the pictorial role of the actual geometrical entities in their reference to the algebraic symbols. The singular instantiation of an equation is its individual result. This means that the generality-individuality relationship exists only in the relation between the equation and the *point* of the curve which it describes if completely calculated. Unlike the point, the curve is not the representation of *a* solution to the problem, but the image of *all the possible solutions to that kind of problems*. If this is true, then the curve is *a representation of the equation as such*. In other words, if the point is the fruit of a full explication of the values of the algebraic formula, the curve is not. On the contrary, it is an attempt to geometrically represent *the features of generality and pure possibility of the algebraic complex*. This implies a deep change in the understanding of the capacity of the imagination.

Recall that in Proclus the mathematical imagination is completely

⁴⁴ In my opinion, this is the basic mistake in the otherwise amazing Lachterman 1986.

independent of the senses and its objects are the fruit of its interaction with the discursive reasoning. In this way, the imaginative capacity is the bearer of an epistemic logic which has its own legitimacy, not derivable from that of the senses. Apparently, the same argument is present in Descartes' *Rules for the Direction of the Mind* where we are told that, when the intellect applies itself «to the imagination in order to form new figures, it is said to imagine or conceive».⁴⁵ Without entering in such a difficult topic as that of the role of the imagination in the *Rules*,⁴⁶ what is important to remember is that an understanding of the productive capacity of the imagination was present even in the Scholastic thought and in the debate on the nature of mathematics in 16th century.⁴⁷ Consequently, the actual innovation in the modern framework is not the productivity of the imagination as such, but *what it produces*. As our brief summary of Descartes' method in the *Geometry* has shown, the crucial point is that the figural geometrical object is a representation of the generality of the algebraic formula. The Cartesian image is not an individual which needs a general entity, which it can refer to, in order to obtain legitimacy and intelligibility. It is not a barely imaginative exemplar, but a figural archetype. Kant is on the same line when he writes in the *Critique of Pure Reason* that the «representation of a general procedure of the imagination for providing a concept with its image is [...] the schema for this concept».⁴⁸ The true specific feature of Modern imagination is that it can produce a generality and not its bare example. Consequently, the great challenge Descartes and his heirs have to face is how to distinguish the generality of the imagination from that of the intellect.

An easy solution to this extremely difficult question would be to say that the equation is the representative of the intellect in the geometric realm. Thus, the distinction between equation and curve would be the same as that between intellect and imagination. Unfortunately, this is not

⁴⁵ AT X, 416, 2-4; Descartes 1995, 42.

⁴⁶ See on this point at least Marion 1975, Pasini 1992, and Sepper 1996.

⁴⁷ On this point Rabouin 2009 is absolutely right.

⁴⁸ *KrV* A140/B179-180; Kant 1998, 273. On this see Klein 1985. Of course, this does not mean that Descartes' and Kant's understanding of imagination is the same, see Ferrarin 1995.

the case. In the *Rules* Descartes is extremely clear in stating that even the algebraic symbols are products of the imagination.⁴⁹ The equation is part of the generality of the imagination, just like the curve. The passage from one to the other is a matter of different representations, without any change in the faculty involved. Using Leibniz's terms, the curve is the *expression* of the equation and reverse.⁵⁰

This terminology fits particularly well our puzzling situation because it prevents a possible misunderstanding. Actually, the argument of the Fifth Meditation has been often read as if Descartes would describe the discovery of a separate essence looked through the image of the geometrical object. Now, if this is certainly true of the idea of God, the same does not apply to the other ideas. In order to note their difference, we have to appreciate a textual detail. We saw that concerning the geometrical objects Descartes speaks of *quaedam ejus natura, sive essentia, sive forma, immutabilis et aeterna*. On the contrary, in the case of God's idea the formulation is a bit different: «There are many ways in which I understand that this idea is not something fictitious which is dependent on my thought, but is an image of a true and immutable nature [*sed imaginem verae et immutabilis naturae*]». ⁵¹ This last expression is used in order to underline the preeminence of God's idea among the other innate ideas and this same pre-eminence is grounded in the necessary connection between God's essence and his existence. Thus, a separation of the immutable and eternal essence from its image

⁴⁹ Cf. AT X, 416.28-417. 15; Descartes 1985, 43: «If, however, the intellect proposes to examine which can be referred to the body, the idea of that thing must be formed as distinctly as possible in the imagination. In order to do this properly, the thing itself which this idea is to represent should be displayed to the external senses. [...] it is not the things themselves which should be displayed to the external senses, but rather certain abbreviated representations of them [...]». This passage from Rule XII finds its accomplishment with the *brevissimas notas* (i.e. the algebraic symbols) in Rule XVI, cf. AT X, 455, 4. On this point see Caton 1973.

⁵⁰ See the famous definition in Leibniz's *Quid sit idea* [Leibniz 1890, VII, 263]: «*Exprimere aliquam rem dicitur illud, in quo habentur habitudines, quae habitudinibus rei exprimendae respondent*». Not surprisingly, one of Leibniz's examples is that «*aequatio Algebraica exprimit circulum aliamve figuram*». As far as I know, the best analysis of the notion of expression in Leibniz is Mugnai 1976.

⁵¹ AT VII, 68, 12; Descartes 1995, 47.

in the mind is *a privilege of the divine idea*. Otherwise, the essence is the very structure of the image in itself and coincides with the fact that *demonstrari possint variae proprietates* of the figure. In other words, the essence of a geometrical object coincides with the operational possibilities which the mind has in dealing with it.⁵² As we saw in the case of the equation, in Descartes' understanding, a mathematical object is nothing other than its being a tool of the knowing activity of the subject. In this context, an essence points to the set of actions which the mind can perform.

Coming back to the much more complex account of the *Geometry*, we could say that the essence is precisely the fact that the mind can operate on the equation or on the curve knowing that their properties are the same. Making evident this correspondence is one of Descartes' main preoccupations. From the point of view of the bare algebraic calculation, Cartesian *Geometry* does not provide any relevant innovation. Algebra is, in a certain way, given.⁵³ Technically speaking, Descartes' goal is that of creating a geometrical semantics for the algebraic reckoning.⁵⁴ From the point of view of his epistemology, this means that the task of the *Geometry* is to show that one can operate on the equation without losing information on the curve and vice versa.⁵⁵ This means that the correspondence of the operational properties between the curve and the equation is what makes of the one the expression (again in Leibnizian

⁵² On mathematics as the domain of possibility see the *Conversation with Burman* in AT V, 160. Kant shows to be a loyal Cartesian when he writes in the *Metaphysical Foundations of the Natural Science* that [Kant 2004, 3]: «Essence is the first inner principle of all that belongs to the possibility of a thing. Therefore, one can attribute only an essence to geometrical figures, but not a nature (since in their concept nothing is thought that would express an existence)».

⁵³ Of course, this does not mean that Descartes does not include any change at all, especially from the point of view of the symbolic notations. On this point see Serfati 2005.

⁵⁴ See Chiaravalli 2020.

⁵⁵ This is precisely the result of the “doctrine of the equations” in the Third Book. Remind that in Descartes the equation has no legitimacy outside its geometrical problem. It does not exist as autonomous object of consideration as it does in Fermat, for example. On the relation between algebraic formula and geometrical construction see Bos 2003.

terms) of the other. They have the same essence because they are two different representations of the same operational context.

In this way, the unitary and closed realm of geometry is completely ensured. The key change lies in the will of the mind to represent an object according to the peculiar problem it has to solve.⁵⁶ Cartesian geometry is an artful use of our figural and symbolic imagination. Its power is crucial in Descartes' mathematical account. It makes visible those portions of space which should be included in the solution to the problem. Without its help no clear mathematical operation would be possible. Actually, the geometrical objects usually employed by Descartes are quite different from the triangle, which is used as example in the Fifth Meditation in compliance with the traditional Scholastic debate on the nature of mathematical demonstration.⁵⁷ There are no simple, individual figures in Descartes' *Geometry*, but different kinds of curves which isolate specific parts of the extension. Thus, imagination has the crucial task to identify all the components of the portion of space which the mind is interested in. Following the intention of the intellect, it detaches that specific part from its original extensional context, letting it appear as an independent object. Thus, that part of the extension, now conceived as one and singular object, shows a specific set of operational properties. In this way, it appears as a peculiar essence despite the fact that Descartes abolishes all the substantial forms from the material world. In fact, it has or, better, it *is* an essence only in so far as it is not a part of the physical universe, but the isolated portion of the clear idea of extension which the intellect finds in the imagination.⁵⁸

⁵⁶ On the will as basic dimension of the Cartesian mind see the *Passions of the Soul*, AT XI, 339, 7-8; Descartes 1985, 333: «our volition, which is the only, or at least the principal, activity of the soul».

⁵⁷ See on this Bernhardt 1988.

⁵⁸ See the Sixth Meditation, AT VII, 73, 25-26: «*ea naturae corporeae idea distincta, quam in imaginatione mea invenio*».

4. Conclusion: Recasting Platonism in Modernity

A conclusion we can draw from our brief sketch of Proclus' and Descartes' understanding of mathematics is that their distance is irreconcilable. This is because what they are speaking about when they reflect on geometry are two completely different practices. Reading Descartes as a Platonist means to overlook the fact that modern intellectuals cannot resist the temptation to adapt the ancient conceptuality to the phenomena of their new mathematics and culture in general (even when they want to be loyal followers of the Ancients). It goes without saying that this adaptation implies a radical betrayal of the ancient heritage. Thus, our principal task should not be to take for granted metahistorical categories, such as "Platonism", but to carefully detect the breaks in the apparent continuity in the tradition of philosophy (and mathematics, in this case). From this point of view, the historical problem of Platonic legacy in modernity is immediately complicated into three different aspects: the radical difference among the phenomena taken into account (in our case, mathematics, but the same might be said about physics or society), the transformation of the contents of the dialogues and of the writings of Plato's Ancient followers according to the new phenomena, and the self-awareness of the betrayal necessarily implicit in this operation. One of the trickiest problems in the history of "Platonism" is that this self-awareness is usually not present in the authors as well as in their interpreters. Thus, references to the Platonic texts are taken as if they were evidence of an engagement in a trustful continuation of Plato's work (assuming that we are able to properly understand what Plato's work was about).

Beyond the common stereotype created by this misunderstanding, the real question concerns the different ways in which modern authors make use of ancient concepts and, in our context, of those belonging to the Platonic tradition. Put in this way, the true problem concerning Descartes' Fifth Meditation is: why does he use a Platonic language in order to express something radically different from the usual meaning of that language? A full and satisfying answer cannot be given here. A modest proposal could be that of considering the huge role which the rhetorical strategy plays in Cartesian texts, with particular regard to the *Meditations*, which is a masterful and playful composition of different and contrastive languages. If one of the main goals of this literary *pastiche*

is that of creating the impression of a comfortable and peaceful relation with the previous tradition, this cannot explain all the rhetoric strategies Descartes makes use of in the text. In the Fifth Meditation, for instance, he employs the language of Platonism in order to distinguish *inside the mind* two different levels of thinking and, in doing so, grounding the capacity of the human thought to operate truthfully without any reference to external entities. In this way, the historical meaning of traditional categories is completely transvaluated, but the language of pre-Cartesian metaphysics is saved for the theory of knowledge (as the survival of the couple “matter-form” in the post-Cartesian debate shows at best). Essence as a descriptive category of the structure of the individual object is something that is possible only in the domain of thinking. Descartes uses it in order to point to the *mind’s awareness of achieving truth while operating with that idea*. With all the irony of which history is capable, the concept of essence is used precisely so that it can be abolished.

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Keywords

Descartes; Proclus; Platonism; geometry; imagination

Abstract

The aim of this article is to question a common interpretation of Cartesian philosophy of mathematics according to which Descartes is a Platonist. Such a controversial issue is faced by contrasting Cartesian geometry with Proclus' commentary to Book I of Euclid's *Elements*, which in the 16th century was the main source for a Platonic interpretation of mathematics. Despite many apparently common aspects and concepts, we will see that Proclus' and Descartes' accounts are mutually irreconcilable. This is the case because the kinds of mathematics, which they are trying to philosophically explain, are completely different. Actually, Euclidean geometry is structurally based on two irreducible elements: the image and the word. Thus, Proclus is forced to articulate an epistemology that is able to account for a mathematical practice which is intrinsically divided, creating a hierarchy among its elements. On the contrary, Cartesian geometrical calculus is a unitary field where the language of proportions includes the inner duality of ancient geometry. From this basic difference we can show how distant they are on the role of the epistemic faculties in mathematics and especially on that of the imagination. This makes us possible to look differently at Descartes' usage of Platonic conceptuality in the Fifth Meditation. Concepts like essence or form are no longer notions corresponding to different levels of being, but rather representatives of the different operations of the human mind in producing its own instruments of knowledge.

Iacopo Chiaravalli
Istituto Italiano di Studi Germanici, Roma
E-mail: chiaravalli@studigermanici.it

PABLO MONTOSA

UPSETTING AN UPSIDE-DOWN WORLD:
BRUNO'S REASSESSMENT OF
ARISTOTELIAN INFINITY

TABLE OF CONTENTS: 1. *Introduction*; 2. *How to build a finite world*; 3. *Three steps to deprivation*; 4. *A private matter*; 5. *Finitude is not that great*; 6. *Conclusions*.

1. *Introduction*

Towards the end of the third of the five dialogues that comprise *On the Infinite*,¹ Burchio, the character who acts as spokesman for the Aristotelians, replies to Fracastoro that whoever defends the theory of the elements he has just expounded would be turning the world upside down: «In this way, you would put the world upside down». Fracastoro's reply is: «Would you consider him to do ill who would upset a world which was upside down?» (324). In this passage's context, the target of subversion is the Aristotelian theory of the natural places of the elements. In fact, as Philotheo (275-276), Bruno's spokesman in the dialogue, previously pointed out, this subversion is the consequence of an earlier subversion: the subversion of the Aristotelian conception of infinity, which Aristotle himself explicitly presents in *Physics* 3, 6 as a subversion of the traditional conception (206b34-207a1). Therefore, Bruno's purpose is to subvert the Aristotelian subversion in order to return things to their natural order. However, as Miguel Ángel Granada sharply points out in a footnote to his Spanish translation of the work, if we follow the development of the dialogue carefully, we will see that this «first and fundamental error of Aristotle», consisting of «the denial of the infinity of the universe», «follows from the faith, following the

¹ I will quote this dialogue from the English translation by Singer 1968, 225-378. In some quotations, I have standardized the spelling to adapt it to current usage.

immediate evidence of sense, in the immobility and centrality of the Earth» [Bruno 2019, 96, n. 19]. Indeed, the direct object of controversy of *On the Infinite* is Aristotle's *De Caelo et Mundo* [Bruno 2019, XXIV-XXIX]. In later works (*Figuratio Aristotelici Physici auditus*, *Centum et viginti articuli de natura et mundo adversus Peripateticos, Camoeracensis Acrotismus seu rationes articulorum physicorum adversus Peripateticos*, and *Libri Physicorum Aristotelis explanati*), Bruno will hastily refute the notion of infinity that Aristotle presents in *Physics* 3. In these works, however, we find the denunciation of the error but not the causes that, according to Bruno, led Aristotle to commit it. Instead, these causes must be traced back to *On the Infinite*. It is this work that will allow us to illuminate the deep foundations of his later criticism.

The aim of this paper is twofold: on the one hand, to prove that behind the controversy between Bruno and Aristotle about the existence or not of infinity lies a more profound dispute about the existence or not of absolute moral values; on the other hand, to show that, by tracing back the former controversy to the latter, Aristotle and Bruno's arguments become more apparent. To this end, we will begin (section 2) by tracing the causes that lead Aristotle and Bruno to respectively deny and affirm the existence of the infinite. Then, we will show that this leads to two opposite ways of conceiving of God and the world. Thus, Aristotle conceives of God as an unmoved mover that only thinks himself, detached from a world populated by finite substances. Bruno, on the contrary, identifies God with the only infinite substance, of which the things of the world would be nothing more than its modes as immanent expressions of its infinite power. After that, we will examine (section 3) how Aristotle's concept of substance requires transforming negation into a substantial attribute of things in the form of privation. This explanation will provide us with the conceptual apparatus to clarify Bruno's account of Aristotelian negative and privative infinity (section 4) and his corresponding refutation, as well as to highlight its moral implications (section 5).

2. *How to build a finite world*

In a critical moment of the second dialogue of *On Infinity*, one of the characters, Elpino, paraphrases a passage from Aristotle's *De Caelo* (271b1-10) regarding the ancient philosophers who proclaimed the existence of an infinite whole: «however small an error may be in origin, it becomes by ten thousand repetitions ever greater, just as the smallest error of direction in the beginning of a path, becomes greater and greater the further the distance we traverse» (275).² As a reply, Philotheo throws the accusation Aristotle hurled against his predecessors back at him: «For even as he believed that from a wrong understanding of this original point his adversaries have been led to great errors, so we on the contrary believe and see clearly that by the opposite opinion concerning this prime matter, he has perverted all natural reason» (275-276).

As this passage points out, according to Bruno, Aristotle's main error is the denial of the infinity of the universe. This might suggest that the core of Bruno's polemic with Aristotle lies in a conceptual disagreement. However, if we pay attention to the causes that allegedly have led Aristotle to deny the existence of infinity, we will realize that under this disagreement there is more than meets the eye. According to Bruno, Aristotle's first mistake lies in turning his perceptual limitations into an attribute of the universe: «it is asserted against all reason, that the universe must terminate exactly at the limit of our perceptive power» (299).³ But, as Bruno explicitly denounces, this error depends on the even more fundamental one of taking the relative immobility and centrality observed from our terrestrial horizon as essential attributes or properties of the Earth, thereby erecting a center of absolute rest, which can only have a place in a finite cosmos: «Once the end of the thread is

² For Aristotle's passage: Aristotle 2020, 8-9. In *Physics* 1, 2, Aristotle makes a similar remark regarding Melissus' infinite whole: «Grant him one absurdity and the others follow – nothing difficult in this» (185a11-12). The quotations from Aristotle's *Physics* are primarily from: Aristotle 2018. Despite this, I will occasionally depart from Reeves' translation to emphasize some aspects of Aristotle's text relevant to our argument. For this purpose, I have consulted: Aristotle 1936.

³ As Tristan Dagron comments: «Invoquer naïvement le témoignage des sens revient à situer dans l'objet la limite qui relève en réalité de nos propres facultés» [Dagron 1999, 129, n. 2].

found, the tangle is easily unraveled. For the difficulty proceeds from the method and from an unfitting hypothesis, namely, the weight and immobility of the Earth» (361).

Albertino then confirms that this is the error underlying Aristotle's denial of infinity. Reacting to the previous conclusion, he brings us back to the passage from which we started at the beginning of this section: «I perceive then more clearly than ever that the smallest error at the start may cause the greatest difference and peril of errors at the finish» (363). As Philotheo says, the error comes from the «method» and an «unfitting hypothesis». The unfitting hypothesis is the assumption of the centrality and immobility of the Earth. The method or way of proceeding⁴ is to turn a relationship into an attribute or invariable property of one of the *relata*. In the first case, Aristotle projects his perceptual limitations onto the cosmos, which becomes finite. In the second case, Aristotle turns the stability of his viewpoint regarding the motion of the stars into a property of the Earth, which becomes motionless. By doing this, Bruno shows that every polyadic predicate, which expresses a relationship, is reduced by Aristotle to a single monadic one, becoming a property.⁵

Now, Aristotle's «method» is precisely the method Plato used in his battle against the Sophists. Thus, when Protagoras argues that honey «is sweet to the healthy man and bitter to the sick» (*Tht.* 166e2-4), Plato removes the relational clause that associates honey's sweetness with the individual who tastes it and converts it into an attribute of honey, and, consequently, into a monadic predicate.⁶ According to Plato, Protagoras' error lies in limiting himself to the world of the senses, composed of a plurality of particular, relative, and changeable things. But in this world, where things are always changing, coming to be but never achieving true being, true knowledge cannot be found. It can only be found in

⁴ Singer translates «modo» as «method»: cf. Bruno 2006, 331.

⁵ In speaking of monadic and polyadic predicates, I am aware of the great distance that separates the «logic» of Plato/Aristotle and Bruno from present-day logic and linguistics. I believe, however, that the historian must resort to the categories of his own time to clarify how he interprets the works of the past without hiding behind mere textual paraphrasing.

⁶ Plato 2015, 35. In Plato's *Theaetetus*, the object of sweetness or bitterness is «wine» or any food. Here, however, I will speak of «honey» to emphasize my point and highlight the continuity with Aristotle's thought.

the intelligible world, composed of unique, universal, absolute, and immutable things; a world where the sweetness of honey is independent of the palates that taste it.⁷

As is well known, Aristotle coins the concept of substance to partially introduce in the world of the senses some of the properties that Plato reserved solely for the intelligible realm. The Aristotelian substance is, in the first place, that which designates the essence of things. These essences are defined *per genus et differentiam*. A specific difference designates the attribute or exclusive property that essentially belongs to the thing. Thus, for example, a human being is essentially a rational animal, rationality being the universal property that distinguishes it from the rest. Secondly, this universal substance subsists through change and is conceived by itself, independently from any accidental modification that the sensible substance, composed of matter and form, may undergo. Instead, these changes are only explainable by that which remains, as the substance's permanence is taken as a brute fact (*Metaph.* 1017b ff.).⁸ The changes in the substance refer to its accidental properties. What remains, however, are not only its essential attributes but also its unique properties or *propria* (*Top.* 101b15-20 ff.).⁹ Accordingly, if we consider sweetness to be a unique property or *proprium* of honey, it will be sweet regardless of who tastes it, and it cannot cease to be sweet without ceasing to be honey.¹⁰ Once we remove the other *relata*, namely, the individual who perceives the honey, to affirm that honey is sweet and bitter is equivalent to attributing to it two mutually exclusive predicates, thereby falling into a blatant contradiction (*Metaph.* 1053a31-35). In such a way, from an Aristotelian point of view, Protagoras' world, i.e., the world as it appears immediately to our senses, has been reduced to mere accidentality. Perceptions are not intrinsic relations but the

⁷ We fully realize that Plato's doctrine is far more complex than we present it here, but to take a balanced position on this issue would entirely deviate us from our concern. For a subtle and nuanced interpretation of Plato's theory of relations, see Giovannetti 2022.

⁸ Aristotle 1924, 74.

⁹ Aristotle 1997, 3-6.

¹⁰ «Thus honey because it possess sweetness is called sweet [...] is not called sweet because it has been affected somehow» (*Cat.* 9a32 ff.): Aristotle 2002, 25-26.

result of fortuitous encounters between substances, detached from their essential nature.

We do not know what arguments Protagoras could have used to refute Aristotle's objections since all his works are lost. However, nothing prevents us from reconstructing his thought from Plato's account.¹¹ As already said, the statements «honey is sweet to the healthy man» and «honey is bitter to the sick» imply dyadic predicates. That is because honey's sweetness and bitterness result from perception, and each perception expresses a relation between the thing perceived and the thing that perceives it. From this viewpoint, the statement «honey is sweet» seems incomplete and meaningless. For it to be a complete statement, it should specify for whom honey is sweet, because honey, in itself, is neither sweet nor bitter. Therefore, we can claim that Protagoras does not contradict himself when he states that «honey is sweet to the healthy man and bitter to the sick». He would fall in contradiction if he asserted that «honey is sweet and bitter to the healthy man», which he does not. We could even argue in Protagoras' favor, that, by making sweetness an attribute of honey, Plato is taking the conditional «If upon tasting honey I perceive its sweetness, then honey is sweet» (which expresses a relationship since honey is sweet only *insofar as* I perceive its sweetness) for the conditional «If honey is sweet, then upon tasting honey I perceive its sweetness», thereby incurring the fallacy of *affirming the consequent*.¹²

The reader may wonder what Protagoras has to do with Bruno. The point is that, just as Aristotle, with his concept of finite substance, has provided an ontological basis for lodging Plato's forms in the world of the

¹¹ From here on, I will rely on the following reconstructions of Protagoras' thought: Solana 1994, Osborne 2011. For an overview of Protagoras' «secret doctrine»: Brancacci 2011.

¹² Protagoras' exposure of this illicit reasoning on the part of his opponent is apparent in this passage from the Platonic dialogue named after him: «You are not correctly recalling what I said in answer to your question, Socrates. You asked me if the courageous are daring, and I agreed that they are; but you didn't ask me if, in addition, the daring are courageous – for if you had asked me that, I should have said that not all are» (*Prt.* 350c6-d1); Plato 2002, 44. As Solana acutely points out, Protagoras is perfectly aware that Socrates is incurring the fallacy of affirming the consequent: Solana 2000, 139.

senses, so Bruno, by asserting the existence of a single infinite substance, has provided an ontological basis for Protagoras' relationships.¹³ Since there is according to Bruno only one substance, and the things of the world are nothing but accidents of it, these accidents must necessarily be regarded as «essential accidents», an expression Aristotle would find oxymoronic. That is why Bruno prefers to call these accidents «modes»: «for every mode therein is a thing, and every thing and every mode are the same, the one as the other» (235).¹⁴

In Bruno's understanding, things as modes are the reverse of substance: they are in something else by means of which they are conceived. And this in two senses: they are in the substance they inhere and comprehended by it, but they are also in another mode and comprehended by it. Since God, viz. the infinite substance, is the immanent cause of things, these things must be conceived by His immanent activity and not as His external products. Things, as well as the worlds and heavenly bodies of the infinite universe, are gestures of the divine «face»: «they all move and live, grow and render effective several acts of their vicissitudes; produce, nourish and maintain their inhabitants and animals; and by certain dispositions and orders they minister to high nature, changing the face of a single being through countless subjects» (323).

To understand what Bruno means, we should think of things as the gestures that a gymnast makes when exercising. Properties, in any case, supervene these things as, for instance, a specific physical complexion supervenes the one who exercises. However, adequately conceived, things will always be parts «in» the whole, not parts «of» the whole: «since being is indivisible and absolutely simple, because it is infinite,

¹³ The absence of this ontological foundation would lead Protagoras' to a sort of skepticism like that advocated by the Ephectic philosophers, as Bruno points out in the *Cabala*: Bruno 2002, 73. On the connection of this passage from the *Cabala* with the Aristotelian critique of Protagoras' relativism: Dagron 1999, 94-95.

¹⁴ I have modified Singer's translation: «for every mode therein is an object, and every object and every mode are the same, the one as the other». Bruno's original says, «perché in lui [God] ogni modo è cosa, et ogni cosa e modo è uno e medesimo con l'altra e l'altro» [Bruno 2006, 19]. By translating «cosa» as «object», Singer predisposes the reader to think of a substantial thing. Unless by «object», one understands an intentional object such as *plier, étendre, relever, sauter, tourner*, etc.

and is act in its fullness in the whole and in every part of it (in the same way we speak of parts in the infinite, but not of parts of the infinite), we cannot think in any way that the earth is a part of being, nor that the sun is part of substance, since the latter is indivisible» [Bruno 1998, 92].

Now, if things are modes, and modes are always in something else in virtue of which they are conceived, then in Bruno's view things are intrinsically relations.¹⁵ But not relations which take place «in between» things, but which essentially constitute them, just as, for example, we can say that «husband» and «wife» do not exist as such before the relation «marriage».¹⁶ How are these constitutive relations reduced to properties? We have already seen this: by removing one of the *relata*. The wife becomes a widow when the husband dies, and their former relationship becomes an invariable property of her. So then, to go deeper

¹⁵ As Eugenio Canone points out, «La relation est un concept-clé de la pensée de Giordano Bruno, comme du reste de l'âge moderne, dès lors que la *relatio* y représente en fait une catégorie fondamentale, bien au-delà des réflexions qu'Aristote lui a consacrées» [Canone 2016, 143]. The Brunian concept of «mode» would be closer to the Aristotelian concept of «affection» than to that of «accident». It is not by chance that Aristotle holds in *Physics* that affections are neither properly finite nor infinite [Aristotle 2018, 43]. Accidents are finite insofar as they denote extrinsic determinations. Affections, on the contrary, are conceived as «intrinsic modes» of the essence. According to Dagron, this Brunian conception of modes as passions or intrinsic modifications could be traced back to Pomponazzi [Dagron 1999, 390-393]. It should be noted, however, that the Brunian conception of modes is inseparable from the actual infinitude of the substance. Ignoring this principle entails reducing the modes to mere accidentality, as Bruno seems to insinuate regarding Avicbron: «And this happens, inevitably, to those who do not know what we do» [Bruno 1998, 62]. On the influence of the Trinitarian model on the Brunian conception of intrinsic relations, see the insightful pages that Giulio Gisondi has recently devoted to the concept of «nexus» [Gisondi 2020, 205-213]. Regarding this question, on the Brunian rejection of the distinction between creation *ad intra/ad extra*: Blumenberg 1976, 127; 179, n. 148.

¹⁶ Jeffrey E. Brower identifies two opposing theses on the reality of relations: the realist and the anti-realist. The first would hold that «Things are related independently of any activity of the mind»; the second, on the other hand, is that «There are no polyadic properties or accidents in extramental reality». However, both would share the same premise: «Relations are that in virtue of which things are related» [Brower 2016, 46]. Instead, the Brunian concept of mode implies a much more radical realism of relations, according to which: «Relations are that in virtue of which things are».

into the «method» of reduction of polyadic predicates to monadic ones, we must inquire into the nature of this suppression and, in particular, of negation understood as deprivation.

3. *Three steps to deprivation*

Most linguists and philosophers who have dealt with the subject of negation have remarked that negation cannot be considered a monadic predicate since, being built on a prior affirmation, it depends on the thing previously affirmed and in relation to which it is predicated [Heinemann 1944, 133].¹⁷ When we say that «honey is not sweet», we are carrying out a reasoning that involves at least two terms: on the one hand, (a) the idea of sweetness associated with honey, and on the other hand, (b) the idea of another flavor associated with honey, such as, e.g., bitterness, which, in turn, we do not associate with sweetness. As a result, «non-sweetness» cannot be a property of honey. If this were to be the case, so would all the infinite lacks or absences that we could predicate of honey, such as, e.g., «non-triangularity» or «non-drivability». That implies that negative sentences and predicates must be counted among the class of ellipsis or anaphora when they do not specify the other term of the relation they presuppose and to which they refer. In this sense, the statement «honey is not sweet» only makes sense in a discursive context that presupposes the bitterness of honey. Otherwise, the utterance refers to an empty referent, which the receiver can fill with any other flavor that diverges from sweetness, such as salty or sour [Wason 1965, 7-11].¹⁸

In reply to such an argument, Aristotle would point out a commonsensical observation: we do not talk about a «sweet triangle», a «bachelor baby», or a «blind stone». Accordingly, we do not attribute sweetness to a triangle, bachelorhood to a baby, or blindness to a stone. Instead, we do so to one of marriageable age or naturally capable of sight. As a result, sweetness, although not perceived, can continue to

¹⁷ Cf. Bosque 1980, 12. Even Aristotle accepts this principle in his *Metaphysics*: «The affirmative proposition is prior to and better known than the negative (since affirmation explains denial just as being is prior to not-being)» (996b14-16).

¹⁸ Cf. Hasson *et al.* 2006.

constitute an essential attribute of honey in the privative form of «non-sweetness». In this case, deprivation falls on the perceiving subject whose illness prevents him from accessing the real taste of honey. But it can also fall on the perceived object, as in the case of the blind man, deprived of sight.¹⁹

If we try to dissect the thought process or algorithm underlying the concept of privation, we will see that it can be explained as the result of implementing the following steps:

- (S₁) Affirmation: we *affirm* vision as a connatural attribute of a human being.
- (S₂) Negation: we *deny* vision in a particular human being.
- (S₃) Privation: we affirm the previous denial as an attribute of that human being in a *privative* form, namely, blindness.

In fact, it is the same mental algorithm by which the perception of the bitterness of honey is reduced by Aristotle to the privation of its sweetness: (S₁) the connatural sweetness of honey is *affirmed*; (S₂) the bitterness of honey is *denied* insofar as it differs from its essential sweetness; (S₃) the “non-sweetness” of honey is affirmed as a *privation* of its connatural sweetness (due to the illness of the one who perceives it).

If, however, we maintain with Bruno that all properties are relational, the criterion that allowed us to distinguish between a relative or accidental negation and a privative or essential one will vanish into thin air. For Bruno, privation is nothing; at most, it is nothing but a being of reason resulting from habit.²⁰ We assume that honey is sweet;

¹⁹ As Aristotle states in his *Categories*: «We say that that which is capable of some particular faculty or possession has suffered privation when the faculty or possession in question is in no way present in that in which, and at the time in which, it should be naturally present» (*Cat.* 12a28-33).

²⁰ «Naturae nomine dignius esse formam quam materiam nusquam probare potuit Aristoteles. Privationem quoque naturae nomine insignire nescio quam tute potuerit» [Bruno 2007, 11]. On the Brunian concept of privation, see Lucia Girelli's entry to the term in the *Enciclopedia Bruniana & Campanelliana* [Girelli 2017, 149-164]. On the same issue, see also: Girelli 2013. From Girelli's account, we gather that, in his works, Bruno uses the term «privation» in three different senses: (i) in a positive

that an adult must be married; or that a particular animal species can see. As a result, when we find an exemplar that disappoints our initial expectations, we project those expectations onto it in the form of faults.²¹ But, in doing so, we are reifying a lack, a mere negation, and conferring being to non-being. However, things cannot be defined by what they are not but by what they are. Hence, what distinguishes a blind person is not his lack of vision but the peculiar relationships he establishes with his environment and the strategies he employs to adapt to it. The same thing will happen with an individual who is far above average height and who has to cope with a medium that is not tailor-made to his or her size.

According to these principles, we must necessarily conclude that, from Bruno's perspective, each step of the deprivation algorithm would entail engaging in illicit reasoning:

- (S₁) In the first step, we move from the proposition «If when tasting honey I experience sweetness, then honey is sweet», according to which honey is sweet insofar as it is perceived by someone as such, to the proposition «If honey is sweet, then when tasting it I experience sweetness», which explains sweetness by a connatural attribute of honey.²²

one, when he uses it in order to expound Aristotle's thought; (ii) in a negative one, when he expresses his ontological rejection of the concept and reduces it to a being of reason; and, finally, (iii) when he resignifies it in an Anti-Aristotelian sense to express the dynamicity of becoming. This last sense is the predominant one in the works that Dagron considers «rhetorical» or «encyclopedic» in nature, such as the *Summa terminorum metaphysicorum* or the *Lampas triginta statuarum*, in which Bruno makes use of philosophical multilingualism to inoculate in the reader his own thoughts [Dagron 1999, 16, 221-222, 235-239]. On Bruno's usage of Aristotelian language with an Anti-Aristotelian meaning: Zaffino 2022, 9-15.

²¹ Aristotle himself depicts privation in his *Metaphysics* as the absence of what would be expected by nature to be present (1022b23-1023a8).

²² In this paper, we have confined our analysis to Bruno's denunciation of this inversion in *On the Infinite* since it is there where he shows how this mechanism leads Aristotle to deny the existence of the actual infinite and to postulate a finite cosmos. Nevertheless, it is noteworthy that the process of substantialization described in this first step (S₁) entails a severe drawback to Aristotle's epistemology. Since, according to Aristotle, things are defined by their substantial essence, their singularity reduces

- (S₂) In the second step, we move from the proposition «If honey is bitter, then honey is not sweet», according to which honey is not sweet only insofar as it is perceived as bitter, to the proposition «If honey is not sweet, then it is bitter», which allows us to define bitterness as «non-sweetness», and which, to that extent, is equivalent to affirming that «Honey is bitter *if and only if* it is not sweet», which is blatantly false, since it could well be neither sweet nor bitter, but sour or salty, without the affirmation of any of these tastes implying the negation of the others.²³
- (S₃) In the third step, the affirmation of the bitterness immediately perceived by the senses is subordinated to the negation of sweetness and becomes conceived by virtue of what is not, as deprivation of sweetness, subverting the priority of affirmation over negation and making the former dependent on the latter.²⁴

them to the realm of the accidental and, to that extent, become unknowable. The Scotists will try to circumvent this epistemological hurdle by forging the concept of «haecceity» to designate the constitutive form of a particular being. In the *Cause*, however, Bruno objects to them that their individual forms are nothing but accidents [Bruno 1998, 59]. This issue, which largely deviates from our scope, is thoroughly examined in: Dagron 1999, 189-197, 311-321; Gisondi 2020, 187-197.

²³ As can be seen, going from the statement «If honey is bitter, then honey is not sweet» (in which bitterness and sweetness are conceived as contrary predicates since they cannot be both true in relation to the same subject, but both can be false) to the statement «Honey is bitter *if and only if* it is not sweet» (in which bitterness and sweetness are conceived as contradictory predicates, since they can be neither true nor false at the same time, since the affirmation of one implies the negation of the other, and vice versa) expresses the reduction of contrariety to contradiction, a procedure that Bruno explicitly denounces in *Cause* by pointing out that Aristotle «stopping at the genus of opposition, he remained snared by it in such a way that, not having descended to the species of contrariety, he did not reach or even perceive the goal. He strayed completely away from it by claiming that contraries cannot actually concur in the same substratum» [Bruno 1998, 100]. «L'erreur d'Aristote est précisément pour Bruno de penser la privation comme une "contradiction"» [Dagron 1999, 101]. On Bruno's conception of contrariety: Carannante 2017, 85-97.

²⁴ As one of the anonymous referees has pointed out, Bruno's critique of privation extends to the distinction between the ordained and the absolute power of God, introduced by Christian thinkers from the dogma of creation *ex nihilo*. Indeed, as God, by virtue of his free will, self-limits his absolute power to create only one among the infinite possible worlds, the created world comes to be conceived as a private one.

So far, we have shown that behind the Aristotelian denial of the existence of the infinite the following premises lie: (S₁) the affirmation that every existing thing is necessarily a finite substance; (S₂) the subsequent reduction of relations to connatural properties of those substances; and, finally, (S₃) the necessity of reintegrating those properties into the substance under the form of privation when we cannot attribute them to a particular substance in a straightforward manner. This analytical toolkit will allow us hereafter to understand clearly and precisely the substantial conception of finitude in Aristotle, as well as its correlative denial of the actual existence of the infinite and its partial reintegration in the real under a privative and unknowable guise.

4. *A private matter*

In taking the finitude of particular substances as an unarguable starting-point, Aristotle jumps into the discussion about the nature of infinity by playing with marked cards.²⁵ Moreover, he keeps those cards so close to his chest that he does not reveal the premise of his whole argument until the end of the four long chapters (4-8) he devotes to the issue in *Physics* 3. So, in line 208a13 of the eighth chapter, he plainly states: «what is limited is not a relation (τὸ δὲ πεπερασμένον οὐ πρὸς τι)».

To clarify this point, Aristotle distinguishes being limited (τὸ πεπερασθαι) from being in contact (τὸ ἄπτεσθαι). The former is not a relation, whereas the latter is, «since everything that makes contact makes contact with something, and is an accident of some limited things» (208a11-13). The issue is that each body, being a finite sensible substance, is limited by its own figure, without such a limit implying in itself the reference to another body. For every finite substance subsists and is conceivable by itself, making contact with another is something that happens to it or supervenes it.

Here, however, we shall confine ourselves to Bruno's criticism of Aristotle, to whom the concept of creation *ex nihilo* was utterly foreign. On this matter, I refer the reader to: Granada 1994; 2002a; 2021, 315-348; Del Prete 2003.

²⁵ «Negamus Aristoteli corporis rationem esse planitie terminatum, sicut et numeri rationem numeratum esse non concedimus, petit enim in principio philosophus iste, quotiescumque tales asumit definitiones» [Bruno 2007, 15].

This is how the finitude of substance results in the substantialization of finitude. Limitation, or finiteness, acquires all the characteristics proper to substance. Everything that exists, by the sheer fact of being, is necessarily finite or limited. Accordingly, finitude is complete, independent and conceivable by itself. In other words: finitude is a whole. As Aristotle puts it: «Whole and complete are either entirely the same or very close in nature. Nothing is complete that has no end, and the end is a limit» (207a13-15). Aristotelian finitude, in this respect, acquires an absolute and positive sense: «So one must judge Parmenides to have spoken better than Melissus: the latter says that the infinite is whole, the former that the whole is finite» (207a15-16).

As can be seen, by explicitly depriving the limit of its relative sense and making it a feature of particular substances, Aristotle remains faithful to his usual procedure of reducing any dyadic (or polyadic) predicate to a monadic one. Everything susceptible of being conceived relationally will become a substance's attribute, defined by its genus and specific difference and explained by its substantial nature. Movement and rest, up and down, center and periphery, even left and right (as happens with political parties), become proper and inseparable attributes of certain substances: «every sensible body is in a place, and the specific differences of place are up and down, before and behind, and right and left. These are not merely relative to us or to position; they are so in the universe itself» (205b31-34).

If this is so, finitude, understood positively, is one of the specific properties or attributes that substances possess in their own right. In that case, infinitude is only conceivable negatively, as a negation of substantial finitude, and that in the twofold sense of negation: a relative and accidental one as well as a privative and proper one.²⁶

In the first conception, we have *negative infinity*, which Aristotle associates with two mental processes: addition and reduction. The former is infinite because there is always the possibility of finding a number greater than any number assigned. The latter is also infinite because there is always the possibility of reducing a continuous extension to a smaller magnitude than any magnitude assigned. In both cases, the

²⁶ For the characterization of Aristotelian privative infinity: Philoponus 1994. On Philoponus' influence on Bruno: Granada 2018a, 161, n. 18.

infinity at stake here is conceived negatively and anaphorically. Thus, what we have is always a finite and determinate number or magnitude. However, by relating this positive quantity to another unknown quantity different from the previous one, which we can add or subtract, we say that such quantity *x* exceeds the previous one. When we fill this empty box with a specific positive quantity, we have a finite and determinate quantity again. So infinity can only be conceived as a partial negation of the previous finite quantity. That is why Aristotle will characterize this possibility of always exceeding a given quantity, in the direction of the large or the small, as potential infinity. In such a manner, Aristotle has reduced potential infinity to the purely psychological realm, depriving it of any actual correlate beyond the minds that conceive it.

In the second conception, we have *privative infinity*, which Aristotle does not confine to a mere thought process but to that which underlies every process in general. Indeed, after rejecting the previous conceptions of infinity as something positive and reducing it to the mere negation of finitude, Aristotle admits that this negation cannot be absolute. If this were so, we could not account for three apparent phenomena: the infinity of time, numerical series, and the infinite divisibility of extension. However, there is an important feature that Aristotle points out a few paragraphs later. We do not speak about the infinite in extension, movement, or time in a straightforward manner: movement is infinite because the extension it covers is infinite, and time is so because the movement that occupies it is so (207b21-25). For instance, planets move around the Earth in perfect circles and uniform motion. While they do so, the extension they cover is infinite, as every portion of it differs from the previous one, even though those same portions will be covered repeatedly due to the circularity of motion. On the other side, if we read on to *Physics* 4, we will see that Aristotle defines time as «a kind of number»: time is a «number of movement in respect of the before and after» (219b1-2).

In all three cases, for Aristotle, the ontological substratum of infinity is movement. That is why he suggests that infinity exists in the same way that a day exists. We say that the day is infinite because it is never wholly actualized since, when it becomes, it is no longer: it is another day; that being said we must remember that, for Aristotle, the physical

correlate of the day is the movement of the Sun around the Earth. Thus, if we want to inquire about the mode of existence of infinity, we must ask: what is movement? Previously, Aristotle defined movement as «the actualization of what is potentially, insofar as it is such» (201a10-11). A block of marble is potentially a sculpture. The marble moves during the process of actualization by which it becomes a sculpture. However, the block of marble potentially does not move, just as the actual marble sculpture does not. Movement, instead, insofar as it is such, «cannot be posited either on the potential or on the actual side of things» (201b28-29) but in the passage from potentiality to actuality. That is why «it seems infinite» (201b28) and is so «difficult to grasp» (202a2). How could it be otherwise if all that is and is conceivable is a substance, and substance is what remains through change?

It is in this precise sense that we must understand the analogies between infinity and matter established by Aristotle throughout these chapters. Prime matter is the ultimate substrate that allows the passage from one form to another during generation and corruption. Its never-satisfied desire to acquire a new form makes it possible to account for substantial change. Therefore, «it is evident that the infinite is a cause in the way matter is, and its being is a privation» (207b36-208a1). «That is why the infinite, insofar as it is such, is unknowable, since the matter has no form» (207a25-26).

That was, indeed, as we tried to show with our three-step algorithm, the result to which Aristotle was necessarily driven by undertaking the first step and (S_1) *affirming* finitude as a substantial attribute. That obliged him to conceive of infinitude in the second step (S_2) as the *negation* of the previously affirmed finitude; and, finally, in this last step (S_3) to reintegrate under the form of *privation*, that is, as the negation of the previous negation, everything that contravenes that substantial finitude postulated in the first place.

What is knowable for Aristotle is limited to potential infinity, i.e., infinity as the anaphoric negation of something finite in relation to something else. So, since the *privative infinite* is properly unknowable, only the *negative infinite* can be defined, and it must be done in relation to another thing: «It turns out that the infinite is the opposite of what people say it is: it is not what nothing is outside of, but rather what

something is always outside of» (206b34-207a1). Thus, insofar as the infinite refers to something outside of itself, it must be conceived relationally. Moreover, as Aristotle clarifies a few lines later, that to which it refers is not something positive but an absence or partial negation, whatever it may be: «But what something is absent from and outside of is not an ‘all’, whatever may be absent» (207a12). When we fill this empty box with a number or a magnitude (or whatever it may be), the infinite ceases to be infinite and becomes finite. In this sense, as we have already seen, infinity is the partial negation of complete and finite substances: «For this is how we define what is whole, namely, as that from which nothing is absent – for example, a whole human being or a whole box» (207a9-10).

Through this line of reasoning, Aristotle explicitly portrays his conception of the finite and the infinite as the subversion of the customary view: what has hitherto been understood as infinite corresponds to the finite, and what has hitherto been understood as finite corresponds to the infinite. Throughout these chapters, Aristotle takes great care to emphasize, with his conceptual maneuver, that he is operating a subversion not only of the conception of the infinite by the thinkers who preceded him (φαίνονται δὲ πάντες καὶ οἱ ἄλλοι) (208a2-3) but also of its popular and traditional meaning: «Yet it is from this that people derive the dignity attributed to the infinite, that it surrounds everything and contains everything in itself, because it has some similarity to the whole» (207a18-21).

Let us now finally see how Bruno’s criticism of the Aristotelian concept of infinity is easily explainable as a counter-reply to each of the points we have outlined in this section and how it entails a subversion of the moral universalism implicit in it.

5. Finitude is not that great

If we now try to read Bruno’s criticism in light of the tripartite scheme we have elucidated in the third section, we will see that his argument becomes crystal clear.²⁷

²⁷ In this section, I will focus on those aspects of Bruno’s critique of Aristotelian

(S₁) First, Bruno rejects the Aristotelian premise that the things of the world are limited and complete substances and that, as a result, finitude is a substantial attribute or property conceivable by itself. He implicitly assumes that a negation depends on a previous affirmation; therefore, nothing can deny itself.²⁸ For the same reason, «there is no object which does not terminate in another, nor can we experience nothing which terminates in itself» (233).²⁹

Thus, Bruno starts his attack on Aristotle by redefining finitude according to his own principles. The things of the world are modes and, to that extent, relations. Therefore, finitude is a relation. Rather finitude expresses a limit, and that limit implies a negation. Now, as we have seen, it is accepted among most philosophers that every negation depends on the prior affirmation of the thing denied. And the affirmed thing, like everything, is a relation. We start, therefore, from a relation between A and B, that is, from A-B. Then, in relating A to B, we say that A is finite or limited because *it is not that other thing* B. That is the only sense in which we can regard something as finite.

To support his claim, Bruno makes a very witty and ingenious move. Since, according to this conception of finitude, the limit is not something given beforehand but something produced, it must be understood as the result of a process of delimitation. And the Greek word that Aristotle uses in *Physics* 3 to designate the action of delimiting is the verb «ὀρίζειν» (207a32), which is the etymological root of the word «horizon». This etymology allows Bruno to use the image of the horizon to illustrate his relational conception of limit. When we look at the horizon line, we have the impression that this line actually exists

infinity that contribute to stress my claim. In doing so, I am certainly adopting one among many other historiographical options. But a broader examination, including Bruno's remaining criticisms, would dilute the scope of this paper and diminish the force of my argument. For a fuller development of this question: Del Prete 1998, 68-95. Likewise, the reader can find a detailed study of Brunian Anti-Aristotelianism, especially concerning the *Camoeracensis acrotismus*, in Amato 2005. For an overview of Bruno's critique of Aristotle's physics: Zaffino 2015.

²⁸ «I speak of things that exist, for I do not think the distinction between 'being' and 'non-being' is real, but merely verbal and nominal» [Bruno 1998, 75].

²⁹ «Finitum Aristotelis est ignotum, falsum, et impossibile: notum, verum, atque necessarium est infinitum plurium philosophorum» [Bruno 2007, 15].

and that it divides, limits, or separates the sea or the land from the sky. In fact, «the arch of the horizon that our deluded vision imagines over the earth» (246) is merely a distortion of perspective.

Neither the sea limits the sky nor the sky the sea. Likewise, finitude supervenes things by putting them in relation and considering that one partially negates the other. But it in no way constitutes a substantial attribute. Moreover, since the impression of finitude depends on the relations between things, which can change at any moment, the limit of something, like the horizon line, will always be changeable: «And in this matter our sense-perception [...] advertises and confesses his own feebleness and inadequacy by the impression it gives us of a finite horizon, an impression moreover which is ever changing» (251).³⁰

Thus, in Bruno's view, there is not a single horizon as Aristotle thinks, that of the sphere of fixed stars constituting the ultimate limit of the cosmos. This Bruno calls ironically the «highest horizon» (362). Rather there will be an infinite «plurality of horizons», as many as relationships can be established between the things of the world: «You would then see that however numerous were the horizons around a world, they would belong not to one world, but would have each one the same relation to his own center» (370).

(S₂) After converting negative and relative finitude into a substantial attribute of things, Aristotle's next step, as we have seen, consisted in denying the possibility of attributing infinitude to them, establishing, to that extent, a dichotomy between finitude and infinitude, which reduced the latter to a negation of the former. Accordingly, the same procedure applies to all relational predicates. Thus, things will either be naturally at rest or in motion; they will naturally tend toward the center or periphery, and so on.

However, once we have stripped things of their substantial quality, as Bruno has done, and have returned these predicates to their original relative meaning, they will cease to be mutually exclusive, and we will

³⁰ «For those who approach the limits of the horizon, the sense always makes them the center of the horizon, which is their inseparable companion. So that any point to which they go from the previously manifested periphery becomes the center for them» [Bruno 1879, I, 1, 217]. On Bruno's use of this image as a paradigmatic example of «senso regolato»: Granada 2018b, 113 ff.

be able to hold that the same body is at rest and in motion, depending on the other body we take as a point of reference: «we cannot apprehend motion except by a certain comparison and relation with some fixed body» (311). So likewise, since the center has ceased to be an absolute property of the finite cosmos, there will be as many centers and peripheries as there are points of reference in infinite space: «For the points they suppose to be on the ultimate circumference of the world whose center is our earth may be conceived as points on innumerable other earths beyond that imagined circumference» (329).³¹

More importantly, since finitude is nothing more than a partial negation that happens to things when they enter into relation with one another, each thing is partially finite and infinite. Finitude and infinity have thus ceased to be exclusive predicates. But things, as modes or affections, are always in something else and conceived by something else, and this is whether that something else is another mode or the substance into which they inhere: «For anything which can be termed a limiting body must either be the exterior shape or else a containing body» (252).

(S₃) We arrive at the consequence that follows from the previous steps: the privative conception of infinity. Having reduced the infinite to a mental process, Aristotle cannot account for certain natural phenomena, such as the passing of days or the generations of men, whose ultimate ontological substratum lies in motion. The difficulty of this, no doubt, lies in the premise that Aristotle has taken as his starting point. If everything is a substance, and substance remains through change, motion can only be predicated of substance accidentally but not understood by itself (*Ph.* 191b15). Hence, when that motion refers to substantial change, involving, to that extent, the passage from one form to another, Aristotle parallels infinite motion and matter, whose perpetual desire to acquire a new form can only be understood privatively.³²

³¹ For a more extensive development of this aspect of Bruno's critique, see Del Prete 1998, 85-86; Amato 2005, 160-165.

³² For a thorough examination of the motif of matter's unfulfilled desire to constantly acquire new forms and its reception (and subversion) by Bruno, according to his positive conception of desire: Granada 2017, 467-469. The identification between matter and desire understood as deprivation and its positive resignification is explicit

Likewise, the infinite, regarded as a manifestation of change, can only be understood as a deprivation of substantial form's permanence and, thereby, is unknowable.

Now, for Bruno, movement is not a problem. On the contrary, if the things of the world are affections of a single substance, they are essentially changeable.³³ Motion is not something that happens to things; things are motions, modes, gestures. If nothing happens, nothing is. Therefore, it is not what is changeable that needs to be explained by what is permanent, but permanence in change, which can only be understood as the relative motion, more or less stable and regular, that some changing things attain. Far from being unknowable, motion is the most knowable thing that presents itself immediately to the senses. Hence Bruno refutes the privative conception of the infinite advocated by Aristotle (and of matter as the subject of substantial change associated with it) simply by asserting that privation is not. Privation, at most, is nothing more than a being of reason, which Aristotle has endowed with an ontological entity by reifying negation, subordinating the affirmative to the negative: «Or you may call it [heaven] the primal subject denoted by that word space, so as to ascribe unto it no limited position, if you prefer by *privation* and *logically* to regard it as *something distinct in our mind*, but *not in nature*» (373).³⁴

Moreover, Bruno will reverse Aristotle's gesture and interpret the Aristotelian conception of finitude under the sign of privation. Indeed, by

in the lower triad Void-Orcus (Privation, Desire)-Night (Matter) of the *Lampas triginta statuarum*, as Granada 2018a, 169-172 has shown. For Bruno's positive conception of matter: Bruno 1998, 78-86. See also the enlightening pages that Barbara Amato has devoted to the issue in: Bruno 2009, 21-25, as well as in her entry for the voice «*materia*» in: Amato 2010, 58-65. On Bruno's rejection of the Platonic and Ficinian conception of desire, understood as lack or deprivation, perpetually unsatisfied, and its positive revaluation as *philautia* or desire to endure in being, see Granada 2018b, 111-120.

³³ Hence Bruno argues: «Motum non in quattuor, vel sex tantum, sed in omnibus reperiri praedicamentis dicere debuisse Aristoteles» [Bruno 2007, 13].

³⁴ Thus, Bruno would subvert the characterization of Aristotelian *potential* and *actual* infinity as *negative* and *privative* infinity, affirming, on the one hand, the existence of actual infinity, and conceiving of potential infinity, on the other hand, as a being of reason and, accordingly, in privative terms: Blum 2016, 70-72.

postulating that each body is limited by its own figure, independently of its eventual contact with other bodies, Aristotle faces an insurmountable stumbling block when he must determine the limit of the sphere of the fixed stars, the ultimate limit of the finite cosmos. If the latter is finite, it must have a surface, and consequently, it will be susceptible to being limited by something else. But, in that case, there would be something else beyond the finite cosmos, with which it would cease to be finite. To solve this paradox, Aristotle distinguishes the concave surface from the convex: the cosmos has a concave surface, but not a convex one. Thus, being deprived of a convex surface, it can neither come into contact with nor be delimited by anything else. Now, according to Bruno, the distinction between a concave and a convex one is a mere being of reason without any actual reference outside the mind that imagines it. To conceive of a concave surface without a convex surface is like conceiving of a one-sided coin. Hence, Bruno denounces that Aristotle has endowed with reality a mere logical distinction making «two» out of what is one.³⁵

Once again, Bruno's deconstruction of the Aristotelian scheme faithfully reproduces the tripartite algorithm of privation that we have elucidated:

- (S₁) First, Aristotle transforms the relation of concavity and convexity, which are two sides of the same coin, since one cannot be given without the other, into independent and separable attributes of the same thing.
- (S₂) This allows him, secondly, to introduce negation, conceiving of concavity and convexity as correlative terms: there is no surface that is not concave or convex, but there can be concave surfaces that are not convex.

³⁵ «He cannot escape the difficulty that one cannot be transformed in two, for the container is eternally different from the contained, so different, indeed, that according to Aristotle himself, the container is incorporeal while the contained is corporeal; the container is motionless while the contained has motion; the container is a mathematical conception while the contained has physical existence» (253-254). It is possible that, in denouncing that Aristotle has made two out of what is one, Bruno has also in mind Philoponus' commentary on *Physics* 201a3: «Now each is present in two ways to everything, as in the case of [what is] this in particular; for the one is shape, the other privation» [Philoponus 1994, 20-21].

- (S₃) Third, he reifies the negation of convexity, conceived, in turn, as the negation of concavity, granting it an ontological entity so that finite bodies come to be conceived as bodies essentially deprived of convexity.

Accordingly, what Aristotle maintains about the sphere of the fixed stars must be applied to every finite body insofar as its inner limit is independent of its eventual contact with other bodies. Therefore, according to Bruno, Aristotelian finitude is nothing other than privation and, to that extent, a being of reason.³⁶ In contrast, infinity expresses the absolute perfection of the universe.³⁷ That is why Bruno, against Aristotle's criticisms, vindicates both Parmenides' and Melissus' infinity.³⁸

As can be seen, the first misstep (S₁) will pave the way for the remaining two. This step involves reducing relations to invariable properties of finite substances or, as we have said above, polyadic predicates to monadic ones. Thus, when Aristotle turns the relative rest of the Earth regarding the observable motion of the stars into an invariable property of the Earth, he reproduces the same gesture as one who goes from «honey tastes sweet» to «honey is sweet». In doing so, as Bruno cruelly suggests, Aristotle indulged himself in what he considered the major impediment to attaining actual knowledge: the

³⁶ Undoubtedly, as many scholars have pointed out [Amato 2005, 163; Blum 2016, 103; Dagron 1999, 107], Bruno's criticism of Aristotelian privation extends to the use that the Christian Aristotelians had made of it to characterize the theological concept of sin, as can be seen in the long speech of Poliinnio that opens the fourth dialogue of *Cause* [Bruno 1998, 70-74]. It may not be ruled out that behind Bruno's denunciation hides a more direct confrontation with the most noble and well-bred gentleman Sir Fulke Greville, in whose chambers the dialogue of *The Ash Wednesday Supper* took place [Maggi 2005].

³⁷ On Bruno's infinity as absolute perfection: Knox 2020, 71-102. For an overview of Bruno's conception of infinity beyond its confrontation with Aristotle: Del Prete 2006, 47-60.

³⁸ «Ex eo quod Parmenides dixit unum undique aequale atque sphericum, et Melissus unum asserit infinitum, minime contradiction sequitur inter illos, sed potius alter alterum exponit» [Bruno 2007, 11]. For Bruno's interpretation of Parmenides' One: Ruggiu 2002, 215-219.

«force of custom» (350).³⁹ For Aristotle is falling in the same bias that impels us to say that some guy is nice and not that we are fond of him (or that ice cream is good and not that we enjoy it). Since all the qualities that we predicate of things necessarily refer to our point of view, for the sake of simplicity, we remove ourselves from the equation and turn those dyadic predicates into monadic ones, which designate invariable attributes of things.

So, in explaining Aristotelian finitude as the sophisticated product of a bias introduced by custom, Bruno pays Aristotle back in his own coin. For, if the latter confined relative infinitude to the merely psychological realm, the former relegates absolute finitude to the domain of error. But this small mistake, which we make every day without even noticing it, namely of reducing relations to attributes of things, reproduces the exact mechanism by which we go from «If we like something, then it is good» to «If something is good, then we like it», which allows us, to that extent, to erect a universal morality. In effect, to establish an absolute good and evil, and not simply qualities in relation to what we desire or reject at a given time, goodness and badness must become invariable properties of things, which explain why they are desirable or contemptible. In this sense, as we have tried to show, Bruno's criticism of Aristotelian infinitude must ultimately be understood as a criticism of morality.

6. *Conclusions*

Most scholars have assumed that Copernicus' discovery triggered Bruno to elaborate his cosmological proposal, extending the Copernican model to an infinite cosmos devoid of spheres [Bruno 2018, xv-xix]. However, despite the solid arguments for upholding this claim, some have questioned the extent of Copernicus' influence on Bruno.⁴⁰ For instance, Ernan McMullin has argued that leaving aside the revolution

³⁹ For Bruno's Averroistic denouncement of custom's poisonous effects: Granada 2002b, 37-42.

⁴⁰ Bruno himself could have given rise to it: «I am not particularly interested in Copernicus» [Bruno 2018, 161].

of the planets around the Sun, the differences between Copernicus' and Bruno's cosmologies are far more significant than their similarities.⁴¹ On the other hand, some ancient philosophers, such as Democritus or Epicurus, had already advocated the infinity of the universe and the plurality of worlds [Del Prete 1998, 31-39]. Not by chance, these philosophers share with Bruno the rejection of universal moral values and the defense of ethical relativism [Granada 1989]. This observation, obvious as it may seem, makes our claim to be taken into account: Bruno's critique of morality does not derive from his infinite cosmology, but, on the contrary, his infinite cosmology derives from his critique of morality. Thus, far from constituting a derivative aspect of his thought, Bruno's critique of morality provides a valid exegetical criterion to explain certain aspects of his cosmology that would otherwise be utterly incongruous. Thus, for example, his refusal to turn the Moon into a satellite of the Earth, as Nicola Badaloni pointed out [Badaloni 1955, 85], must be understood in the light of his fundamental opposition to projecting moral values onto the physical world, introducing elements in it that would denote subordination or hierarchy.⁴²

⁴¹ «To call Bruno a "Copernican" requires one to empty the label of all content save the assertion that the earth and planets move around the sun. Not only does his arrangement of the planets differ entirely from that of Copernicus, as we have seen, but he separates himself in the most emphatic way from the methodology on which Copernicus rests his case» [MacMullin 1987, 64]. On the striking differences between Copernicus' and Bruno's conception of mathematics: Rossini 2020.

⁴² Indeed, the rejection of the objectivity of moral values results in the suppression of hierarchies and degrees of perfection on the physical plane, in favor of a total defense of the homogeneity, not only of space but of the basic structures of the bodies that populate it. That could account for Bruno's rejection of one of the most critical aspects of Copernican cosmology: the order of the «inferior» planets, which put an end to the ambiguity inherent in the Egyptian and Chaldean order [Pantin 1988]. As Dario Tessicini has pointed out, in certain passages of his work, Bruno not only goes on to place the Moon on the circumference of the same epicycle as the Earth but establishes the exact relationship between the Mercury-Venus couple, placing its epicycle on the same solar deferent as that of the Moon-Earth couple at diametrically opposite distances. As if that were not enough, in *De immenso*, III, 10, Bruno seems to apply the same model to the higher planets, Mars, Jupiter, and Saturn, together with their respective consorts (imperceptible to our eyes), placing their epicycles on the same solar deferent as that of the lower ones, and even to entertain the wild idea

What Bruno assumes from Copernicus, after all, is that sense data do not designate properties or attributes of things but must be related to the observer who perceives them [Namer 1966, 10]. In this paper, we have attempted to unpack and develop this motto, portraying it as a reversal of the natural tendency to take things for finite substances, and showing its essential coincidence with the cognitive biases that lead us to erect a universal morality. Perception is not the effect of the substantial nature of things but the cause of our attribution of a substantial nature to them. As Dicson, one of the characters in *Cause*, observes: «And I say that the expressed, sensible and unfolded being does not constitute the fundamental essence of actuality, but is a consequence and effect of it» [Bruno 1998, 83].

Recognizing this central motif of Bruno's thought, namely, the denunciation of the inversion of cause by effect, allows us to trace the unforeseen continuity of this idea in the history of philosophy. Thus, in a famous passage in the Appendix to the first book of the *Ethics*, Spinoza argues that the doctrine of final causes «turns Nature completely upside down. For what is really a cause, it considers as an effect, and conversely» [Spinoza 1994, 112]. Likewise, in a mysterious aphorism from *Twilight of the Idols*, Nietzsche makes the following remark: «No error is more dangerous than that of *confusing the cause with the effect*: I call it a genuine destruction of reason. Nevertheless, this error can be found in both the oldest and the newest habits of humanity: we even sanctify it and call it 'religion' and 'morality'» [Nietzsche 2005, 176].⁴³

of granting them the same annual revolution around the Sun [Tessicini 2007, 59-109]. Indeed, this seems to have been something other than Bruno's definitive stance on the question [Granada 2010]. But, in any case, his lucubrations and hesitations should be regarded as absurd and incomprehensible if one does not consider Bruno's profound rejection of any ontological hierarchy and the consequent structural homogeneity that it entails. If our hypothesis seems sound, it is precisely this structural homology that would lead him not only to eliminate the distinction between «inferior» and «superior» planets but to attribute to them a disposition capable of being iterated both at the macrocosmic and at the microcosmic level (as we find it in his *Area Democriti* [Lüthy 1998]). On Bruno's radical rejection of any kind of cosmo-ontological hierarchy: Granada 1992, 65, n. 56.

⁴³ Although in Spinoza and Nietzsche the denunciation of the moral character of this initial subversion is explicit, while in Bruno it is rather implicit, this component is nonetheless an essential element of his critique, as I have attempted to prove in this

This confusion of cause with effect is a modality, as we have seen, of the so-called fallacy of *affirming the consequent*, consisting in going from «If I like something, then it is good» to «If something is good, then I like it». Thus, the goodness we attribute to things insofar as we like them becomes an attribute of things that explains our liking for them.

Nietzsche portrayed his philosophical project as a transvaluation of Christian moral values. Since he considered these values to subvert the natural order of things, he envisioned their subversion as a transvaluation, that is, as a subversion of the subversion that restored things to their natural sense. Likewise, we could say that by showing the moral assumptions of a scientific theory whose scientific objectivity had remained undisputed for centuries, Bruno carries out a «genealogy» of the Aristotelian-Ptolemaic cosmos.

Nowadays, it is very likely that in addressing the relationship between infinity, which is associated with such an abstract discipline as mathematics, and morality, which is conceived as the doctrine of good and evil, someone asks us what that has to do with the price of fish. However, Bruno's unveiling of the moral biases implicit in the cosmology of his time should make us wonder if behind the use of terms from the economic field to designate physical theories, does not underlie a human, perhaps too human, angle. In Bruno's time, on the other hand, the morally revulsive component of his critique of the prevailing cosmology did not go unnoticed by the opponents against whom he addressed it. By upsetting an upset world, Bruno upset the followers of those who had put the world upside down. He upset them so much that they found that sending him to the stake was the most convenient thing to do.

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Keywords

Bruno; Aristotle; infinity; morals; substance; mode; relation; privation

Abstract

Between 1584 and 1585, during his stay in London, Bruno published six dialogues in Italian in which he expounded the bulk of his philosophy in a unitary way. Scholars unanimously agree that these six installments can be divided thematically into two distinct parts: the first three present the new cosmology and its ontological and theological principles, while the last three deal with the moral, political and ethical consequences that follow from the former. Thus, the third dialogue, *On the Infinite*, is the bridge where the passage from the cosmological to the moral sphere takes place. The dialogue presents itself as an open refutation of the Aristotelian finite cosmos. In it, Bruno argues that Aristotle's main error lies in his rejection of the infinity of the universe. However, if we pay attention to the causes that Bruno deems to motivate such rejection, we will see that these ultimately coincide with the cognitive biases that lead to the assumption of moral universalism. This paper aims to prove that contrary to the established belief Bruno's critique of morality is not a consequence of his cosmological view but rather that the latter derives from the former. That will cast new light on Bruno's criticism of Aristotle's moralized infinity and provide us with a firm criterion for interpreting some of the more idiosyncratic aspects of his cosmology.

Pablo Montosa
University of Barcelona, Spain
E-mail: montosa@ub.edu
ORCID: 0000-0002-8739-895X

MATTIA BRANCATO

LEIBNIZ AND THE CONCILIARISTS ON NATURAL MOTION AND THE LEGACY OF ANCIENT PHILOSOPHY

TABLE OF CONTENTS: *1. Syncretism in the 17th century: an historiographical puzzle; 2. The concept of natural motion; 3. Conclusion: a different take on the real and the known.*

1. Syncretism in the 17th century: an historiographical puzzle

One of the most successful narratives relative to the early modern era is that which presents the rise of the new science as a revolution, a change in the ideas assumed and in the authors' mindset so strong that it was incompatible in any way with what was thought before concerning the philosophy of nature, dominated until then by the Scholastic tradition. While some scholars have already questioned the idea that an actual revolution happened,¹ this narrative remains one of the most successful, mainly for two reasons: it is based on a truth universally acknowledged and it was adopted not only later by the historiographical tradition, but also immediately by the very same authors of that supposed revolution. The truth that somehow justifies the revolution narrative is that, as a matter of fact, the concept of inertia developed by the authors of the new science is completely incompatible with how motion and rest were described in the Scholastic tradition. Since the very beginning, drawing from this assumption, the rhetoric based on the opposition between the

¹ See for instance Garber 2016, 133-148, for a brief bibliography on the topic and for his account in relation to the Kuhnian concept. With respect to what I am about to argue in this paper, I would like to point out that even among those who dismiss the idea of an actual revolution, the alternative interpretation is often presented as a slow and more complex process of replacing old ideas with new ideas. In this sense, undervaluing the role of the syncretists because of an excessive dichotomization between old and new ideas is still possible, even in this context.

old and the new, and similar simplifications, began to spread, to the point that in the writings about these topics we often find declarations that specify the position of the author on this opposition.

From a historiographical perspective there is however a real danger in naively accepting this narrative: the dichotomization that it entails prevents a fair understanding of certain authors that built their position precisely on its refutation. These authors are generally called syncretists and the problem of their interpretation and role appears in the history of science and philosophy whenever a strong and irreconcilable opposition of certain ideas is presupposed.

In this paper I would like to argue that in general the very notion of syncretism is detrimental to the understanding of historiographical issues and, more specifically, that the concept of syncretism developed in the 17th century was detrimental to the understanding of the relationship between the rising new science and the influence of ancient philosophy, as it is in the analysis of Leibniz's notion of natural motion and its connection with certain Aristotelian concepts.

The perfect embodiment of these issues in fact is an author such as Gottfried Wilhelm Leibniz, on one side because while he was one of the most important scientists and philosophers involved in the development of the new science, he was slightly younger than other fundamental scholars such as Galilei, Descartes, Spinoza and Hobbes, so much so that growing up he was already influenced by the main narrative concerning their theories. On the other side, because Leibniz's syncretistic efforts are widely known and present throughout his life, at least concerning religious and scientific matters, making him a privileged case study on how syncretism and the rising new narrative interacted.

The dichotomy between old and new authors is perfectly described in fact by a 23-year-old Leibniz in a famous letter to Thomasius dated April 1669 [Leibniz AA II 1, N. 11].² Here, a clear distinction is drawn between the *recentiores* or *reformatores* on one side, including, among others, authors such as Galilei, Hobbes, Descartes and Gassendi, and on the other side the Scholastic tradition in general. The irreconcilable

² Given the peculiar state of Leibniz's critical edition, abbreviated here using the term AA, I will specify in my quotes the series and the volume used, rather than the year.

dichotomy is here fully embraced: «That which is denied by the Scholastics is affirmed by the Reformers» [Leibniz AA II 1, 25-26].³ Leibniz's interpretation is influenced by early modernity's own narrative, which openly substituted the aporetics of ancient and medieval natural philosophy with an axiomatic approach that tended to suppress or mask at any cost big or small inconsistencies.⁴

This clear distinction is consistent with another famous passage, a 1697 letter to Burnett, where Leibniz recalls his early years and his indecision between two opposing approaches: «Most of my feelings have finally been settled after 20 years of deliberation. Because I started to meditate very young: and I was not yet 15 years old when I walked for whole days in a wood to take sides between Aristotle and Democritus [...] and it is only since about 12 years that I find myself satisfied, and that I have arrived at demonstrations on these matters» [Leibniz AA I 14, 224].⁵ One could argue however that in this last passage Leibniz is simply referring to the choice between admitting the existence of atoms and the void or not, and it is not referring to a more general distinction between the old and the new, exemplified by Aristotle and Democritus' different approaches. This possibility leads us to a first inconsistency related to Leibniz's own narrative displayed in the 1669 letter to Thomasiaus previously quoted: what is exactly the criteria that defines the *Reformers* as such? After all, authors like Galilei, Descartes, Hobbes and Gassendi for instance are far from being comparable, especially concerning their philosophy of nature. Arguing that their novelty resides in the assumption of atoms and the void for instance

³ When not specified, the translations from the original Latin text are made by the author of this paper.

⁴ However, as shown later in some seminal works, these inconsistencies were already understood and discussed before the early modern age. See for instance the works of Maier 1949, 1951, which by the way significantly influenced Kuhn approach, and Wolff 1978.

⁵ «La plus part de mes sentiments ont este enfin arrêtés après une délibération de 20 ans. Car j'ay commencé bien jeune à méditer: et je n'avois pas encor 15 ans quand je me promenois des journées entières dans un bois pour prendre parti entre Aristote et Démocrite. Cependant j'ay changé et rechangé sur des nouvelles lumières. Et ce n'est que depuis environ 12 ans que je me trouve satisfait, et que je suis arrivé à des démonstrations sur ces matières qui n'en paraissent point capables».

would be false for some of these authors and, even more, the rejection of these concepts is instead consistent with the Scholastics' views on these matters.

Finding the common denominator that justifies the inclusion of these authors in Leibniz's *Reformers* then is crucial to understand the main narrative he was adhering to. The hypothesis most accepted by the scholars is that Leibniz, thanks to his genius, was already well aware of what we nowadays consider as granted only after centuries of research on the matter, i.e. that all these authors exhibit a certain way of approaching the study of nature following the scientific method described by Descartes, a certain notion of a body as something which is affected by a variety of forces that allow us to describe its behavior and, directly related to this, a certain notion of inertia based on Galilei's findings, so that no body (whether it is a distinct impenetrable atom or not) can change its behavior according to a change that comes from within that body, as the Scholastics believed, but only thanks to the agency of an external force. In other words, provided the needed distinctions on these subjects between the different authors, determinism and mechanism should be then at the core of Leibniz's difference between the Reformers and the Scholars.

I am not going to deny this assumption in its entirety or Leibniz's capability of understanding the novelty of the new science of course, but the prosecution of the 1669 letter to Thomasius is not consistent with these strong assumptions: Leibniz introduces a new category, so to speak, a new list of authors called *conciliators*, which includes personalities such as Johannes De Raey and, above all, his former teacher Erhard Weigel, and inside which he includes himself.⁶ The inconsistency derives here from the fact that Leibniz seems to define himself as a syncretist, while he just displayed a clear awareness of the incompatibility between the old and the new ideas emerging on natural philosophy. If we astray for a moment from the historical context, this

⁶ «Neque vero Raeus conciliatorum inter Aristotelem et recentiores primus solusque est. Primus Scaliger mihi viam stravisse videtur; nostris temporibus Kenelmus Digbaeus et ejus assecla Thomas Anglus, ille in libro *de animae immortalitate*, hic in *institutionibus peripateticis*, idem longe ante Raeum ex professo egere. Nec abludunt tum Abdias Trew, tum inprimis Erhardus Weigelius» [Leibniz AA II 1, 30].

is what happens in general when syncretism is evoked, because in its very definition what is combined by the syncretic philosopher are parts or ideas that are already thought as autonomous, intrinsically different and mutually excluding.

From an historiographical perspective, therefore, syncretism is always a derogative concept, because it entails the impossibility of a real union between the different theories, thus preventing any form of originality by the author. If we take for instance the descriptions of Johannes De Raey's *Clavis philosophiae naturalis, seu introductio ad naturae contemplationem, Aristotelico-Cartesiana* present both at that time and nowadays in various authors and encyclopedias, we often find this work described as a book presenting the novelty of Descartes theories in the fear of their controversial effects, which were mitigated by the author introducing a mixture of Aristotelian concepts. I fail to understand how this could be even possible if such ideas are universally acknowledged as incompatible, and it is evident that approaching De Raey's production in this way would lead to nothing but the demonstration of a thesis already presupposed, that is, that his approach has no value whatsoever.⁷

The alternative to this reading that I am proposing here is to consider these author not as syncretists in this derogative way, but rather as pseudo-syncretists, or conciliarists as Leibniz would call them and himself, stressing the fact that they are not philosophers imprisoned in an old way of thinking, scholars that chose the defeating side of history, but thinkers that saw some limits in the general narrative that was rising, to which they responded reintroducing concepts dear to ancient philosophy. As I will be showing in fact, in these passages Leibniz is facing a situation which is similar to the one I described in this paper concerning the supposed scientific revolution: the same dichotomizing narrative was already universally accepted, and he had to find a solution to avoid being accused of supporting a vain syncretism.

While the term syncretism is not openly used in the letter to Thomasius, it is clear in fact that Leibniz thought about it and thought

⁷ An excellent exposition of the complexity of De Raey's ideas instead can be found in the many works by Andrea Strazzoni. Concerning the wider topic of science and its evolution see for instance Strazzoni 2018.

himself as a syncretist. This is hinted in a close letter to Spener, dated February 1670, when Leibniz is explaining his additions to the edition of Nizolius' works: «I added a letter I sent to a very learned man written by me on the reconciliation between Aristotle and the more recent authors (such as Gassendi, Descartes Hobbes, Digby [...]). Whose syncretism seems to me even more correct and solid than the theological one» [Leibniz AA II 1, 56]. The letter mentioned is the 1669 letter to Thomasius. We know then that Leibniz's aim is to offer some kind of syncretic solution and we already mentioned that his irenic efforts comprehend during these early years and throughout his life both religion and the philosophy of nature, but the exact relation between the two syncretistic approaches remains unclear.

In order to understand the context in which Leibniz's concept of syncretism arises then we need to refer to another important and coeval letter to Spener, dated December 1670 [Leibniz AA II 1, 116]. Here, Leibniz mentions an important work on the topic, that is, Peter Musaeus' *Liber de syncretismo fugiendo*. Peter Musaeus, father of the slightly more famous Johannes Musaeus, was much like his son a theologian active in Jena around the same time of Weigel, in that controversial cultural milieu that was open to Leibniz's irenic efforts. His book, which of course deals with the matter from a more theological perspective, is particularly interesting because describes a brief history of syncretism, presenting various definitions. It is clear from this book that already during the 17th century the concept of syncretism was intended in a derogative sense: in this brief history, it is defined at first as a «collusion between truth and falsity, which is interpreted as a mixture of religions» [Musaeus 1670, 53], later as something that has to deal at the same time with the *auctoritates* and reasoning, something which puts at the same level Luther, the Pope and Calvin in a strange equivalence, conjunction and mixture.⁸ The author then tries to identify the problem behind syncretism as commonly known in history: the origin of the accusations made to syncretism is the inability to discern between the wrong opinion and pure tolerance. In this sense, Musaeus reevaluates theological syncretism stating that «its natural aim

⁸ Cf Musaeus 1670, 60.

is tolerance» [Musaeus 1670, 290]. It is for the same reasons, however, that syncretism needs to be abandoned at a certain point, because it cannot provide more than an initial common ground for a confrontation between different religions. Nevertheless, this was already a great step forward if we consider how the different clashes inside Christianity spread hatred and death throughout the whole Europe at that time, and for this reason, embracing this concept of tolerance is consistent with Leibniz's irenic attempts.

At the same time, we can now clearly understand why Leibniz needs to specify in the letter to Spener that the syncretic efforts concerning the new science are somehow different and stronger than the ones attainable in theology: while being extremely useful in religious matters, tolerance has no place as a value when our aim is determining the behavior of a certain body with respect to its motion. In this case, what matters is only an effective determination of the analyzed situation. The conciliarist approach then needs to be more than this, because it needs to allow a coherent use of the concepts taken from ancient philosophy and used in the context of the new science.

To obtain such results, Leibniz utilized a rhetorical artifice that he shared with his former teacher Erhard Weigel: establishing a distinction between the contemporary use of ancient philosophy concepts as reshaped by the Scholastics and the use of the same concepts by those who understand the real and original meaning that they had in ancient times. Understanding Weigel's influence on this topic is easy if we look at his major work, the *Analysis Aristotelica Ex Euclide Restituta*,⁹ which is based on the very premise that there was a misunderstanding on the interpretation of Aristotle's philosophy because it was not explained with the rigor of Euclid's demonstrations. The rhetoric of the rediscovery, of the newly found *true meaning*, purifies the concepts taken from ancient

⁹ Cf. Weigel 1658. Weigel is also another perfect example of how dangerous it is to adapt a narrative about the history of science and philosophy on how the authors of the period analyzed positioned themselves in the debate: apparently, this correction of Aristotle made through Euclid was based on the false assumption that Euclid was born before Aristotle, which was a common mistake during those years justified by the confusion between Euclid of Alexandria and Euclid of Megara, Socratic philosopher born before Aristotle.

philosophy, because their compatibility or incompatibility with the new science is unverified. Hence, Leibniz can state: «It seems to me that the opinion of the reformers is not only truer, but also closer to Aristotle [than the one of the Scholars]» [Leibniz AA II 1, 26]. I do not intend to analyze in detail how this project of reintegration happened, because it is already the topic of many writings on the young Leibniz,¹⁰ but I rather want to stress how important, liberating, and innovative it was for him to approach the rise of the new science in this way.

Even more, as much as we should not accept the dichotomic narrative on the scientific revolution just because it was believed at that time, we should not adhere naively to Leibniz's narrative on ancient philosophy as well: this rhetorical artifice in fact was utilized by him not only in relation to concepts clearly taken from Aristotle, but also in relation to concepts taken from the Scholastic tradition and presented in a purified new form, as in the case for example of modal scholastic logic and how it was reinterpreted in the *Confessio Philosophi*.¹¹ We witness here the birth of a signature feature of Leibniz's thought that went beyond the mere use of ideas taken from ancient philosophy, i.e. what I would call the ability of extracting an idea out of its context and evaluating its rational foundation. This practice of reinterpreting, cutting, reshaping, integrating, streamlining and ultimately perfecting different concepts has its origin in Leibniz's young reflections on the definition and role of syncretism. Ignoring the origin of these reflections can sometimes be detrimental to the understanding of minor authors related to Leibniz's milieu and it is typical of a certain way of approaching the history of philosophy and science where complex relationships between authors and teaching and religious institutions are often depicted as a mere background of a more important intercourse between few isolated personalities.

In the second part of this article, I will show that on the topic of natural motion, which concerns Leibniz also at a later stage of his production, reevaluating the relevance of the conciliarists can instead highlight new and interesting interpretations on the development of early modern science.

¹⁰ See, among others, Kulstad et al. 2014, or for a general overview on the evolution of Leibniz's philosophy Antognazza 2009.

¹¹ I have already analyzed this topic in Brancato 2016.

2. *The concept of natural motion*

During the 1680s Leibniz is not a young and promising scholar anymore: he had already attempted to enter in the Royal Society, studied mathematics in Paris and contributed significantly to the development of the infinitesimal calculus, to the use of the binary numeral system and to new explorations on the foundations of geometry, culminating with its *analysis situs*. As every Leibnizian scholar knows, the 1680s are particularly important concerning natural philosophy, because we witness Leibniz's reflections on the concept of *vis viva* based on his discoveries in the *Brevis demonstratio erroris mirabilis Cartesii* and similar writings where the analysis of the limits of modern mechanism will eventually lead Leibniz to the revaluation of substantial forms and the rise of his original monadology.

About the early years, these topics are already well analyzed by other scholars, so I would like to focus less on the content of Leibniz's reflections and more on the consequences of these reflections on how he perceived his role and his doings in the history of philosophy and science.¹² After all, the concept of *revaluation* suggests immediately an affinity with the topic of syncretism analyzed in this paper regarding the early years and indeed, while during these years an equivalent documentation on Leibniz's influences as clear as the letter to Thomasius does not exist, some important remarks of the author on sources akin to his new theories can still be found. More precisely in 1689, during his journey to Italy, Leibniz wrote the *Phoronomus seu de potentia et legibus naturae*, a seminal work on the topic of natural philosophy where he hints at his inspiration for the use of certain terminology: «When, about material things, I was accepting only the jurisdiction of imagination, I was of the opinion that there cannot be inside bodies any natural inertia and that, in void or free space, a body at rest has to obtain its velocity from another body, as small as it is. [...] believing that movement was nothing more than a change in space, I was observing

¹² Cf. for example Fichant 2016 and Duchesneau 1994, 1998, and more recently Arthur 2021, 232-324, with whom I share the opinion that derivative force does not act on a different ontic level from primitive force, and that bodies are not on a different ontic level from forces.

that a moving body differs from the same body at rest at least in this, i.e. that the body at rest always possesses a certain *conatus* or (to use a term belonging to Erhard Weigel, renown Saxon mathematician) a *tendentia* [tendency], that is, the beginning of a direction» [Leibniz 2007, 789-790].¹³ Leibniz then concludes stressing the novelty of his new approach: «it is not possible to make sense of the bodies' inertia or of *potentia* unless we presuppose inside bodies something else than extension and impenetrability [...] concerning bodies, it is not possible to explain everything only using the principles of imagination, that is, size, shape, position and their changes» [Leibniz 2007, 799].

Leibniz's reflections show once again that, whether it is conducted following the new ideas or the old ones, natural philosophy during the 17th century has always been body-centric or object-centric: the best exemplification possible to display all the concept involved in the explanation of phenomena entails the observation of a single body/atom/object and all the elements involved in its movement, so much so that major developments in this field, like Galilei's relativity principle and Huygens' generalized version, were based specifically on the thought experiment of subtracting the majority of elements from a situation in which the experimenter observes the behavior of one entity, in order to understand the generalized law behind that behavior. In this sense, the experience of observing, even when it is an idealized experience in which we pretend we are observing something affected by conditions that are not perfectly reproducible in the actual world, becomes crucial.

Leibniz invokes the same thought experiment: «it has been doubted whether the same thing could happen to bodies in an original and natural state when every gravity is removed, and bodies are found as if in the void. It is indeed a big question whether a certain *inertia naturalis* is given within bodies, through which they resist more to a greater motion than to a lesser one» [Leibniz 2007, 780].

Both concepts of *tendentia* and *inertia naturalis* (tendency and natural inertia) are inspired in Leibniz by his reading of the conciliarists. One could argue that these concepts and terms are so generic and utilized that determining their origin is extremely hard: after all, the

¹³ I am using here the Latin version of the excellent critical edition made by Gianfranco Mormino in Leibniz 2007.

concept of *tendentia* is also present in Descartes, and in general the idea of something intrinsically pertaining to one body is nothing else than Aristotle's original idea resurfacing in this context. However, the reason that justifies a closer connection with Jena's conciliarists is that their critique of modern mechanism is similar in every aspect to that of Leibniz, starting from the fact that Leibniz does not completely dismiss natural philosophy based on imagination to replace it with the ancient views of Aristotle, but he rather reintegrates a different approach to natural philosophy alongside mechanism, which nonetheless makes its own positive contribution to the advancement of knowledge.

This approach, which I would call a compatibilist approach, is shared by the conciliarists already during Leibniz's early years. In the *Exercitatio Philosophica De Quantitate Motus Gravium* by Georg Samuel Dörffel, written under the guidance of Erhard Weigel, motion, for example, is defined by highlighting three aspects of its nature: «I. *Impetus*, which is *Motion*, that is, an effort (*conatus*) to move away from its place. Specifically concerning things subject to gravity, it is called *Gravitation*, *Natural tendency* [...]. II. *Determination*, which is the *disposition of motion*, which is the direction of something in motion towards a certain place, so that when the place changes [that something] is taken towards one space instead of another one [...]. [...] the path covered in this way is called *Line of direction*. III. Motion in the strict sense of the term, that is, *Advancement* or *Carrying*, an actual and continuous modification of place [...] which considers, as Aristotle mentions in *De Generatione et corruptione* [...], the change of the contraries when it happens according to place, so that objects subject to gravity, when changing their place removing all the obstacles, move through the line of direction for as much as they are allowed, and this particular motion is called Natural (*Naturalis*)» [Dörffel 1663, 2]. The first two aspects of motion are typical of a mechanist view, and they are consistent with Leibniz's reconstruction about his early years and its adoption of the notion of tendency in the *Phoronomus*, but through the third aspect the conciliarists feel the need to reintroduce the Aristotelian concept of motion as a change within the body, to explain something that happens when all the external influences are removed. This third aspect of motion is called Natural as well and it is, in my opinion, the

closest precursor of Leibniz's concept of *natural inertia*. It shares with it the idea that mechanism, since it is grounded in imagination, needs to be completed somehow with something that restores our experience, in which the leading role in motion is interpreted by the body itself.

Focusing on this experience, it is possible to understand why the conciliarists suggested the reintroduction of Aristotelian concept in the explanation of motion: in the experience of observing one object, while we don't actually see the forces involved in its behavior or the mathematical structure that grants the possibility of its description, we do see the object itself, as a substance affected by change. Modern science is counterintuitive with respect to this basic experience, while the Aristotelian framework granted the conciliarists an easy way to reintroduce this marginalized experience in the study of motion, without conceiving it completely in opposition to its core premises. If we combine the conciliarists' three aspects of motion without prejudices, we obtain nothing more than a modern theory of collision accepting at the same time natural inertia.

When in the 1680s Leibniz develops his concepts of natural inertia, *vis viva*, action and resistance then, it is no coincidence that he is reminded of his early years and the cultural context in which he grew up, so much so that he adopted the same terminology as an homage. In this sense, Leibniz keeps alive the legacy of ancient philosophy by reintroducing certain concepts as if they are alive, changed as much as needed to withstand the passing of time, but similar in the core premises.

3. Conclusion: a different take on the real and the known

In 1669, Leibniz is a young scholar who wants to compete with the best on his field. He is perfectly aware of the latest and most successful narrative on natural philosophy and of the authors that alimented it, but he is also a classicist who believes in the importance of the older philosophical tradition. To overcome this apparent contradiction, he adheres to a concept dear to the cultural context he was born into, a conciliarist approach where ancient philosophy's supposed true interpretation of certain concepts would turn them in an alive and breathing theory compatible with the new science.

In 1689, after twenty years, Leibniz has acquired a relevant position in the European cultural debate on natural philosophy, but the situation was already significantly different with respect to his early years, especially after he had the opportunity of reading Newton's *Principia*, recently published in 1687. Some core concepts of the new science became undeniable by that time, so much so that presenting an opposing theory to that of Descartes or Newton as a reconciliation with ancient philosophy was not possible in the same terms: Leibniz needed to present his work through new concepts, paving the way for the notion of monad of the latest years.

Nonetheless, the fact that Leibniz intended the results of his new physics as a revaluation of substantial forms and the homage to the terminology of the conciliarists he defended in the early years show that he saw a strong connection between his way of criticizing the modern theories on the impact of bodies and the way the conciliarists were criticizing it. Conceptually, it was the same controversy, but played with much higher stakes and conducted using much more refined tools, because Leibniz's critique was based on a better knowledge of every aspect related to the subject.

The historical context that led Leibniz to these positions is often understudied and undervalued precisely because, as early modern scholars, we perceive syncretism in a negative way, and we refuse to categorize Leibniz's position together with other authors who are surely not perceived as original and innovative as he was. Following this dichotomization between the old and the new, however, something has been lost: the reintroduction of Aristotelian concepts was not the last resort of a tradition that was not understanding the great shift taking place at that time, but it was a first attempt to make sense of some limits concerning physics done only through imagination, as Leibniz would have called it later. That of the conciliators was not the sterile position of a syncretic author who cannot think if not things already thought, but it was the position of scholars that deeply understood the matter at hand and identified for the first time some inconsistencies. This is already an achievement from the point of view of the history of science, because it means that the conciliarists must be ideally placed after the first diffusion of the new scientific ideas: as a reaction to them and not

as a confused attempt to understand them, even if the alternative offered could not compete with other theories.

Given these premises, the notion of natural or real motion explored by Leibniz and the conciliarists highlights, in my opinion, a new and peculiar way of understanding the relationship between the real and the known, i.e. between the supposed objectively true and universal plane of science and the subjective and relative plane of knowledge. As I have shown in fact, the conciliarists already conceived natural motion as something which was not completely opposing classic mechanism, i.e. something that has to be thought alongside it, as a completion of an experience that is lacking something from the point of view of reality. If for these authors, when we experience motion, we witness its true nature (while we can still learn something from its geometrical and mathematical exemplifications), it means that the traditional distinction that was emerging during those times between the real and the known, attributing to the known a mere subjective connotation, does not hold in their case. I believe that Leibniz shared this approach, not only concerning physics, where not by chance he writes about phenomena that are well-founded and where a new theory is discovered on the basis of the very principles that he was criticizing, but also concerning other topics throughout his life: when addressing the problem of Hobbes' nominalism in the *Dialogus*,¹⁴ it is the experience of addressing the same entity that suggests the existence of something real that guides us towards the same truth, despite any arbitrary decision; when confronting the problem of false perceptions in the *Nouveaux Essais*,¹⁵ it is again the experience based on something real that grants the possibility of being deceived. From the point of view of ancient philosophy, this idea that even in the experience which is farthest from the truth we are somehow oriented towards it, because the experience of knowledge shares with the truth its ontological foundation, is surely connected with Aristotle's notion of *eikos*, especially when applied to physics.

Revaluating the influence of the conciliarists on Leibniz then means also criticizing those interpretations that stress the phenomenological aspect of Leibniz's philosophy as something intrinsically separated that

¹⁴ Cf. Leibniz AA VI 4, 24.

¹⁵ Cf. Leibniz AA VI 6.

was paving the way to Kant's vision. Analyzing the historical context, the evolution of the approach I have described highlights a clear path: from the influence of Saxon universities and the conciliarists on Leibniz, to his impact on the works of Christian Wolff and finally on the young Kant. Works such as Kant's *Monadologia physica* and similar ones in fact should be interpreted in this context as attempts of making sense and perfecting Leibniz's compatibilist approach in physics. Consequently, Kant's mature criticism can be seen as a reaction to these failed attempts of his early years, which led him towards a more drastic distinction between the real and the known. The debate between these philosophers then shows how wider studies on the cultural context of 17th century Germany challenge from a different perspective the most popular opinions on the role of ancient philosophy in the development of early modern science.

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Keywords

Leibniz; early modern philosophy; mechanisms; alternative theories of gravitation

Abstract

In this paper I argue that the common narrative on 17th century science that uses the concept of scientific revolution to establish a strong distinction between ancient and modern philosophy has prevented the historiographical tradition to recognize the true role of the German syncretic philosophy, which significantly influenced Gottfried Wilhelm Leibniz in the development of his concept of natural inertia and *vis viva*. I argue instead that their views cannot be described as syncretic in a negative way, since their development shows the level of advancement of that debate, which was already highlighting some limits of modern mechanism.

Mattia Brancato

CNRS/ERC PHILIUMM, Université Paris-Cité, France

E-mail: mattia.brancato@outlook.com

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CAROLINA LA PADULA

L'INTELLETTO KANTIANO
COME SPONTANEITÀ ORGANICA.
UNA RIFLESSIONE ANALOGICA SUL
SISTEMA DELL'EPIGENESI DELLA RAGION
PURA A PARTIRE DAL CONFRONTO
CON TETENS E BLUMENBACH

SOMMARIO: *1. Introduzione; 2. Una conclusione epigenetica; 3. Tetens come fonte e termine di confronto; 4. La concezione epigenetica dell'organismo nella Critica del Giudizio nel suo rapporto con Blumenbach: spunti per un'analogia con l'epigenesi della ragione*

1. Introduzione

Alla fine della Deduzione trascendentale della seconda edizione della *Critica della ragion pura* Kant caratterizza analogicamente l'intelletto e il suo rapporto con l'esperienza come sistema dell'epigenesi della ragion pura. Si cercherà di comprendere tale analogia a partire dal modo in cui il dibattito sulla generazione degli organismi tra XVII e XVIII secolo giunge a Kant. Dapprima mi concentrerò sulla fonte primaria di Kant su tale dibattito, l'opera di Tetens. In seguito prenderò in considerazione la concezione kantiana dell'organismo esposta nella terza *Critica*, prestando particolare attenzione al rapporto con la teoria del *Bildungstrieb* di Blumenbach, per individuarne i tratti essenziali che possano essere pertinenti per una comprensione dell'analogia.

2. Una conclusione epigenetica

In apertura alla Logica trascendentale Kant sembra identificare l'intelletto con la spontaneità della conoscenza, intesa come facoltà di produrre da sé le rappresentazioni, concetti di oggetti [*KrV* A 50-

51/B 74-75 (166-69)].¹ Come questa produzione avvenga, soprattutto quando si tratta dei concetti puri, resta però una questione poco rischiarata all'interno dell'opera kantiana, se si escludono rari luoghi in cui la questione sembra essere tematizzata più direttamente, benché non in modo non criptico: alcune *Reflexionen* risalenti agli anni '70; la teoria dell'*acquisitio originaria* delle rappresentazioni – concetti puri, spazio e tempo – contrapposta ad un'*acquisitio derivativa* dei concetti empirici nello scritto contro Eberhard del 1790 [*Entdeckung*, AA 8:221-223 (101-103)]; il paragrafo conclusivo della Deduzione trascendentale nella seconda edizione della *Critica della ragion pura*, che mi sembra particolarmente interessante. In quest'ultimo caso, per ogni possibile soluzione al problema dell'accordo tra concetti ed esperienza Kant pensa ad un paragone con le scienze della vita: *generatio equivoca* nel caso, escluso perché contraddittorio, in cui fosse l'esperienza l'origine dei concetti puri; sistema della preformazione per la teoria dei concetti innati, quali disposizioni (*Anlagen*) soggettive – e dunque prive di necessità – a pensare, piantate in noi e ordinate da un creatore in modo da accordarsi con l'esperienza degli oggetti; sistema dell'epigenesi della ragion pura, nel quale invece i concetti, «spontaneamente pensati», sono condizione di possibilità dell'esperienza [*KrV* B 165-168 (287-291)].² In verità l'analogia con il mondo organico e le scienze della vita non sorprende, soprattutto perché si tratta di qualcosa di ricorrente all'interno della prima *Critica* – dalla caratterizzazione della ragione come totalità organica del suo uso al paragone con l'organismo nell'Architettonica, fino al modo in cui l'intelletto è presentato all'inizio dell'Analitica trascendentale, come unità autosufficiente, non accrescibile dall'esterno, proprio come un organismo [*KrV* B XXIII; A 832-835/B 860-863; A 65/B 90 (42-43; 1168-1173; 186-187)]. Inoltre, già nelle *Riflessioni* poco fa menzionate degli anni '70 Kant cita l'epigenesi come modello per la spiegazione di principi della ragione, di concetti che siano *prodotti* o *acquisiti* a

¹ I numeri tra parentesi tonde si riferiscono alla traduzione italiana, se disponibile, delle opere kantiane. L'elenco delle traduzioni utilizzate (seguite dalle abbreviazioni utilizzate nel testo) è riportato in bibliografia.

² Sull'associazione delle tre teorie biologiche con tre diverse concezioni dell'attività del pensiero (innatismo leibniziano, empirismo, idealismo trascendentale), cfr. Wubnig 1969.

priori [*Refl.* 4275, AA 17:492; 4851, AA 18:8; 4859, AA 18:12)].³ Le tre teorie biologiche menzionate da Kant rappresentano rispettivamente tre ipotesi diverse di spiegazione dell'origine, dello sviluppo e della generazione degli organismi. Se prestiamo attenzione a cosa differenzia in particolare epigenesi e preformismo, che dominano il dibattito delle scienze della vita tra XVII e XVIII secolo, accompagnandosi a una visione ora più vitalistica ora più meccanicistica e riduzionistica del vivente, possiamo dire che nell'epigenesi la generazione è un fenomeno progressivo, dalla materia indifferenziata alla formazione dei diversi organi, mentre nel preformismo c'è solo uno sviluppo, un accrescimento dell'organismo già presente in tutte le sue forme a livello embrionale [Fabbri Bertolotti 1990, 15].

Se si confronta la conclusione epigenetica della Deduzione con il modo in cui Kant caratterizza il compito dell'Analitica dei concetti, ossia il reperimento dei concetti nell'intelletto come loro luogo di origine e l'analisi del loro uso puro, appare però un elemento di sorpresa, di disorientamento:

Noi dunque seguiremo i concetti puri sino ai loro primi germi [*Keimen*] e alle loro prime disposizioni [*Anlagen*] nell'intelletto umano, lì dove essi stanno pronti, fino a quando non vengano finalmente sviluppati in occasione dell'esperienza [...] [*KrV* A 66/B91 (186-187)].

Sembra che rispetto a questo passaggio non si possa neppure parlare propriamente di una forma di genesi dei concetti puri, ma soltanto di uno sviluppo di qualcosa di già pronto, anche se in qualche modo avviluppato. In altri termini, il processo che Kant descrive qui è, almeno apparentemente, conforme non tanto al modello epigenetico di uno sviluppo progressivo da indifferenziato a differenziato, quanto al sistema di preformazione.

Come spiegare questa ambiguità? A ben vedere, se nella descrizione del sistema di preformazione nel §27 i concetti stessi sono intesi come *Anlagen*, nel passo problematico all'inizio dell'Analitica si fa invece riferimento a *Keime* e *Anlagen dei* concetti stessi. Rispetto a

³ Per un approfondimento cfr. Piché 2001.

ciò, possiamo dunque chiederci se ad essere già pronti, a differenza di quanto Kant stesso afferma in prima battuta, non siano i concetti stessi, quanto le disposizioni che li rendono possibili e che in occasione dell'esperienza vengono sviluppate. Una risposta a questa domanda, però, presuppone un'analisi più precisa dei modelli di generazione e sviluppo in gioco, analisi che deve tenere presente una questione che potrebbe persino spiegare questa ambiguità: nel variegato e fervente panorama delle scienze della vita dell'epoca di Kant spesso sembra che le teorie si formassero per reazione ad altre teorie, ma anche attraverso l'inglobamento o la risignificazione di alcuni elementi di esse, tanto che i confini tra preformismo ed epigenesi sono meno netti di quanto si possa pensare.⁴ L'idea kantiana di epigenesi riflette probabilmente questi confini sfumati, evidenti nella tematizzazione dei modelli biologici di generazione e sviluppo da parte di Johann Nikolaus Tetens: è dalla lettura della sua opera che Kant forse comincia a interessarsi maggiormente alla teoria dell'epigenesi [Ferrarin 2022, 51].

3. Tetens come fonte e termine di confronto

Nei suoi *Philosophische Versuche über die menschliche Natur und ihre Entwicklung* Tetens si riferisce alla teoria del suo contemporaneo Bonnet, definendola ipotesi dello «sviluppo totale». Il preformismo di Bonnet (al quale è assimilabile anche Haller, che è invece un punto di riferimento per Blumenbach) è comunque differente da quello teorizzato un secolo prima da Malebranche: è una teoria della preformazione, preesistenza e successiva evoluzione di un *germe* che contiene l'impronta originale della specie, non dell'individuo [Bonnet 1779-1783]. Secondo Tetens esso si basa sul principio per cui «*non sorgono forme nuove*», che distingue il sistema dell'evoluzione e quello dell'epigenesi, in quanto è negato nel primo e sostenuto nel secondo; tuttavia, sempre secondo Tetens, «c'è un'altra idea di evoluzione che alcuni hanno considerato come l'evoluzione generale che si lascia accordare benissimo con l'epigenesi» [Tetens 2008, 1035; 1044].

⁴ Per un quadro esaustivo del dibattito, cfr. Mensch 2013, 1-7; Sloan 2002; Fabbri Bertoletti 1990, 15-18.

L'aspetto interessante dell'opera di Tetens in confronto a Kant non è però tanto come si ponga specificamente rispetto al dibattito corrente sullo sviluppo degli organismi, quanto il fatto che vi troviamo un impiego del modello della preformazione e del modello epigenetico nell'ambito di una teoria delle facoltà. La questione centrale che conduce alla discussione dei due modelli è infatti così caratterizzata: «se cioè lo sviluppo delle facoltà sia un'*evoluzione* di disposizioni naturali già esistenti o un'*epigenesi* che produce nuove facoltà per cui in precedenza era presente non più che la recettività a poterle accogliere» [Tetens 2008, 997].

In questo senso comincia ad essere comprensibile il giudizio che Kant pronuncia nei confronti di Tetens in due *Reflexionen*: Tetens si sarebbe occupato dell'«evoluzione dei concetti», non della loro validità oggettiva, li avrebbe indagati solo soggettivamente (per Kant un'indagine soggettiva sembra qui significare un'indagine rivolta alla «*Menschliche Natur*»), empiricamente, non oggettivamente e in senso trascendentale [*Refl.* 4900, AA 18:23; 4901, *ibid.*].

Effettivamente i *Philosophische Versuche*, come si evince dallo stesso titolo e come lo stesso autore precisa nella prefazione all'opera, sono condotti secondo il metodo osservativo lockiano e proprio della psicologia empirica: si tratterà di un'analisi dell'anima, degli atti dell'intelletto umano, basata su esperienze e condotta attraverso il sentimento di sé [Tetens 2008, 59]. Il punto di partenza è un'analisi delle rappresentazioni, intese ora come modificazioni ora come attività dell'anima, quali manifestazioni della sua natura peculiare [Tetens 2008, 91]; in questo senso l'indagine, sulla scorta del metodo in fisica, si caratterizzerebbe come un risalire da effetti in qualche modo osservabili (*Wirkungen* dell'anima, che sono a un tempo i suoi atti, i suoi effetti e le sue manifestazioni) alla loro causa, la natura dell'anima stessa. Nelle diverse rappresentazioni l'anima si mostra attiva in diverso modo, per cui il risultato di questo saggio empirico delle sue manifestazioni è una scomposizione analitica di essa in varie facoltà: sentimento; facoltà rappresentativa, che include percezione o apprensione, immaginazione (riproduttiva) e immaginazione formativa; facoltà di pensare o di conoscere i rapporti delle cose. Dall'unione di questi tre ingredienti, scrive Tetens, si ha un'idea completa dell'anima e si comprende come

essa possa ottenere idee e concetti e non meramente impressioni ricevute e sentite [Tetens 2008, 167; 307]: è questa l'evoluzione dei concetti cui fa riferimento Kant. È però il riferimento kantiano a una *Menschliche Natur* ad assumere un significato molto preciso nel momento in cui si leggono i *Versuche*. I primi quattro saggi che compongono l'opera possono infatti essere intesi come una «genealogia quasi organica» [Stiening 2018] delle facoltà dell'anima.

Uno dei primi passi di questa genealogia è osservare che «tutte le nostre rappresentazioni traggono origine da sensazioni», che costituiscono la loro materia fondamentale; per questo l'immaginazione formativa è inventiva ma non creatrice, nel senso che non produce nulla dal nulla, ma può produrre nuove immagini dalla congiunzione e scomposizione della materia sensibile [Tetens 2008, 192]. L'osservazione della genesi delle rappresentazioni proprie della facoltà inventiva a partire dalle rappresentazioni originarie delle sensazioni pone però una questione che sta a monte, ossia qual è il rapporto tra le facoltà che compongono l'anima. In ultima analisi, ciò che Tetens propone è un modello di sviluppo delle facoltà, l'una a partire dall'altra, la cui logica è paragonabile a quella del mondo organico. Questo modello viene presentato anzitutto rispetto alle varie facoltà che compongono la facoltà rappresentativa, circa le quali ci si chiede in che misura sono identiche o diverse, come possono essere trasformate l'una nell'altra [Tetens 2008, 194]. La risposta di Tetens è che si tratta di facoltà omogenee: omogenee sono due cose il cui concetto richiede un rapporto fondamentale, benché diverso in ciascuna di esse, delle medesime qualità assolute, e che dunque possono essere trasformate l'una nell'altra per accrescimento o diminuzione. Vi può essere sia un accrescimento sia un rimpicciolimento delle qualità assolute, come nel caso del bruco che diventa insetto, oppure soltanto uno dei due processi è rilevante, come nel caso del seme che si fa albero o dell'accrescimento dell'embrione che è detto sviluppo, o ancora può esserci un accrescimento o una diminuzione regolare e proporzionale che rende l'omogeneità somiglianza. Nel caso delle facoltà che compongono la capacità rappresentativa la qualità assoluta in questione è la spontaneità, che, come principio interno, sta in un certo rapporto con la causa esterna che la stimola all'attività: già al livello della percezione l'anima umana non è meramente recettività, ma possiede una facoltà

attiva che può essere elevata come facoltà spontanea; essa è cioè una grandezza variabile il cui accrescimento determina lo sgorgare della fantasia riproduttiva dalla percezione e dell'immaginazione formativa dalla fantasia riproduttiva [Tetens 2008, 195-208]. In sintesi, Tetens descrive uno sviluppo della facoltà rappresentativa che può essere paragonato allo sviluppo organico nel senso che, come nel passaggio da bruco a insetto, può esserci sia una diminuzione di elementi sia un accrescimento, in questo caso del principio interno della spontaneità, e proprio quest'ultimo processo sembra essere realmente determinante e rilevante nello sviluppo, come nel caso organico del seme che diventa albero e dello sviluppo dell'embrione. Vale la pena sottolineare, a tal proposito, che proprio la crescita dall'interno (in questo caso secondo un principio interno), *per intussusceptionem*, mantenendo la proporzione dei rapporti interni, è per Kant uno dei contrassegni del corpo organico, secondo quanto leggiamo nell'Architettonica a proposito della ragione [KrV A 833/B 861 (1168-1169)].

Di particolare interesse è anche l'analisi della facoltà di pensare, che per Tetens si configura anzitutto come presentazione della genesi di idee e giudizi: la facoltà modifica le rappresentazioni figurate con l'aggiunta dell'appercezione, rendendole idee; le relazioni reciproche delle cose sono già contenute nei sentimenti di relazione, sensibilmente, e nei giudizi vengono poi pensate; ogni giudizio è inizialmente sensibile e non ben sviluppato e mediante un'ulteriore elaborazione della forza di pensare si trasforma in giudizio distinto [Tetens 2008, 308-309]. C'è dunque uno sviluppo che rende possibili idee, concetti di relazione e giudizi a partire da una componente originaria sensibile o figurata. A rigore, le possibili interpretazioni sono due: o la facoltà di pensare è un mero sviluppo a partire dalla facoltà rappresentativa o essa sopraggiunge come qualcosa di diverso da essa, non soltanto per grado. E tuttavia la soluzione migliore potrebbe essere intermedia, alla luce dell'idea di una totalità organica delle parti: la facoltà di pensare è qualcosa di distinto dalle altre facoltà che compongono l'intera facoltà conoscitiva dell'uomo, ma al contempo le sue manifestazioni sono comprensibili solo nella connessione dell'una con le altre. È proprio quest'idea ad orientare la ricerca di Tetens:

si mostrerà se nelle relazioni di queste facoltà, che nei loro effetti esse hanno l'una con l'altra, non compaiano al riguardo indizi da cui si riveli abbastanza la loro relazione reciproca nei loro inizi, nel loro germe [*Keim*], nella forza fondamentale dell'anima [Tetens 2008, 306].

Ora, in questa affermazione abbiamo l'unione di due aspetti strettamente intrecciati nell'opera di Tetens che condurranno infine alla discussione dei diversi modelli embriologici: la questione dello sviluppo e quella di una facoltà fondamentale, originaria, dalla quale deriverebbero le altre facoltà, che si troverebbero in essa inizialmente in uno stato germinale. Non è il primo riferimento di Tetens ad uno stato germinale delle facoltà: sempre a proposito dell'elemento spontaneo come qualità assoluta, Tetens scrive che può esserci una disposizione (*Anlage*) ad essa, un germe (*Keim*) dal cui sviluppo la qualità stessa risulta [Tetens 2008, 209]. Uno degli aspetti curiosi di questa tesi di Tetens è che in essa è presente la diade *Keim/Anlage* che ritroveremo in Kant.

Nel corso dell'opera, questa discussione su una disposizione germinale si collega appunto all'idea di una forza fondamentale, che viene caratterizzata, già a partire dal decimo saggio, come una «forza attiva senziente che, sviluppata fino a un certo grado e in una certa direzione, si manifesta come forza di pensare»; più avanti essa sarà detta «eccellente modificabilità e spontaneità (*Selbstthätigkeit*)», e ancora «*Selbstmacht*» [Tetens 2008, 542; 645]. Tralasciando la questione dell'identificazione di questa forza fondamentale, l'elemento che ci interessa maggiormente è che, nell'affrontare tale problema, si svela un doppio movimento alla base dell'opera di Tetens: da un lato si risale dagli effetti, le manifestazioni dell'anima, le sue attività, alle loro cause, ossia alle facoltà; dall'altro, giunti a questo punto si risale ancora più indietro, a una forza originaria, e da qui parte invece un movimento discendente che spiega il modo stesso in cui queste facoltà si sviluppano da uno stato germinale in cui sono avviluppate. Il riferimento all'epigenesi si ha proprio in questo contesto, nel momento in cui per spiegare lo sviluppo delle facoltà o, in altri termini, lo sviluppo dell'anima, la sua natura, si fa ricorso all'«analogia» con lo sviluppo del corpo, della natura animale nell'uomo [Tetens 2008, 899]. La teoria di Tetens a proposito dello sviluppo dell'anima può dunque essere così riassunta: c'è una «*natura*

innata dell'anima», ossia lo stato delle sue facoltà attive e passive, la formazione che essa riceve parallelamente al suo organo; per quanto questa natura sia modificabile, per quanto cioè le impressioni passive stimolino la forza originaria dell'anima, vi è un'organizzazione fissata che nel suo sviluppo porta a forme determinate necessariamente. In altri termini, lo sviluppo dell'anima consiste in «un'epigenesi prodotta dall'evoluzione, come nel caso dello sviluppo del corpo» [Tetens 2008, 1078-1082].

Se questa idea dello sviluppo delle facoltà in Tetens possa essere avvicinata al sistema di epigenesi della ragion pura di Kant lo si potrà forse comprendere in seguito. Per il momento credo sia preferibile concentrarsi sul senso dell'analogia con il corpo organico in Tetens. In un altro contesto dell'opera, l'analogia è definita come «identità di rapporti e di relazioni tra loro di proprietà di una cosa con i rapporti e le relazioni che le proprietà di un'altra cosa hanno l'una con l'altra»; altrove essa è intesa come qualcosa meno di una somiglianza, in quanto può aver luogo anche tra cose di specie diverse [Tetens 2008, 100; 202]. Kant darà una definizione molto simile nei *Prolegomeni*, caratterizzando l'analogia come non un'imperfetta somiglianza di cose, ma una somiglianza perfetta di due rapporti tra cose del tutto dissimili» [*Prol.*, AA 4:357 (239)], o, come si evincerà dalla *Critica del Giudizio*, la somiglianza delle regole per riflettere su due cose [*KU*, AA 5:352 (545)]. Di fatto, però, credo che il senso dell'analogia tra natura dell'anima e natura del corpo istituita da Tetens sia, già in partenza, qualcosa di più che un'analogia tra due cose che non hanno alcun legame se non il fatto che il nostro modo di riflettere sull'una è applicabile in una certa misura anche all'altra, come nel caso dell'analogia tra corpo animato o mulino e stato, in rapporto alla loro causalità, per Kant. Se anche corpo e anima in Tetens sono due cose diverse, e in ciò si mantiene fedele al suo senso dell'analogia, è pur vero che c'è un presupposto che conduce a quest'analogia e all'ipotesi che possa essere fruttifera per la conoscenza dell'anima. Questo presupposto è un peculiare legame tra corpo e anima attraverso il cervello. In sostanza, lo sviluppo dell'anima (la genesi delle rappresentazioni, dei pensieri, delle sue capacità) può essere pensato in analogia allo sviluppo dei corpi organizzati in quanto «è nel cervello qualcosa di fisico» [Tetens 2008, 61-64], in quanto lo sviluppo dell'anima

incorporea è in costante relazione con lo sviluppo del cervello, poiché una parte della nostra essenza psichica è contemporaneamente una parte del corpo organizzato [Tetens 2008, 539-540]. In questo senso, ciò che è esperibile (la natura fisica) assicura una certa probabilità a supposizioni intorno a ciò che non lo è (l'anima incorporea).

Mi sembra che un tale fisicalismo sia estraneo all'orizzonte di Kant, sia rispetto alla concezione dell'organismo, come si vede già nell'opera del 1788 *Sull'impiego dei principi teleologici in filosofia* [ÜGTP, AA 8:179 (54)], sia rispetto alla sua teoria delle facoltà. Rispetto a quest'ultima questione, Kant stesso riprende il problema di Tetens di una forza originaria alla quale ricondurre le varie facoltà nell'Appendice alla Dialettica trascendentale, ma non attribuisce a tale forza originaria la realtà oggettiva che ha per Tetens, per il quale è almeno indirettamente riscontrabile di fatto: essa è un'unità razionale solo ipotetica [KrV A 648-650/ B 676-678 (932-935)].

L'indagine soggettiva di Tetens è un'indagine sulla natura umana, laddove per "natura" non si intende qualcosa di figurato, come mi pare invece Kant si esprima quando si riferisce a una natura della ragione o dell'intelletto; è un'indagine empirica, persino fisicalista, non trascendentale. Di conseguenza, sarà diverso anche il modo di intendere l'analogia con epigenesi e preformazione o evoluzione: per Kant essa ha il significato di un raffronto tra due cose, che non è giustificato od occasionato da un possibile legame verificabile di fatto tra le due, ma ha valore puramente euristico, per orientare la nostra riflessione, o, meglio per rendere più chiara una riflessione che sembra addentrarsi in un'oscurità di per sé difficilmente rischiarabile.⁵

4. La concezione epigenetica dell'organismo nella Critica del Giudizio nel suo rapporto con Blumenbach: spunti per un'analogia con l'epigenesi della ragione

È sulla scorta di queste precisazioni sul carattere dell'analogia che mi accingo ora ad esaminare la teoria kantiana dell'organismo contenuta nella *Critica del Giudizio teleologico* e i suoi riferimenti alla teoria

⁵ Sul non-naturalismo di Kant rispetto a Tetens, cfr. Mensch 2013, 119-124.

dell'epigenesi. Non intendo sostenere che quando Kant si riferisce a un sistema dell'epigenesi della ragion pura nel 1787 abbia in mente esattamente ciò che sosterrà tre anni più tardi. Vorrei invece verificare se l'analogia, che Kant non ha mai sviluppato, possa essere fruttuosa. Prima è però opportuno riassumere i nodi fondamentali della teoria del *Bildungstrieb* di Blumenbach, che Kant stesso indica come proprio punto di riferimento.⁶

Il risultato delle ricerche di Blumenbach sulla generazione degli organismi viene così brevemente presentato nello scritto del 1781 *Über den Bildungstrieb und das Zeugungsgeschäfte*:

[...] in tutte le creature viventi, dall'uomo al verme e dal cedro alla muffa è presente un peculiare impulso, innato e attivo per tutta la vita, ad assumere dapprima la propria configurazione, quindi a mantenerla, e nel caso che essa fosse distrutta, a ristabilirla per quanto possibile [Blumenbach 1992, 112-113].

Il *Bildungstrieb* o *nisus formativus* è un impulso *sempre attivo, permanente*. Tale carattere, che lo distingue dalle forze o proprietà degli organismi escogitate in altre teorie, è legato al fatto che esso è partecipe di tre funzioni, concepite anche come modificazioni di un'unica forza, il *Bildungstrieb* stesso: la generazione in senso stretto, la nutrizione o generazione generale e la rigenerazione o generazione parziale. In ciascuna di queste tre funzioni il *Bildungstrieb* è rispettivamente ciò che costruisce, mantiene e ripara [Blumenbach 1992, 113-117].

Ciò che viene generato è una certa forma o configurazione. Il carattere peculiare del *Bildungstrieb* è dunque, come si evince dal nome stesso, l'essere *formativo*, nel senso anche di una dimensione processuale ad esso associata (non solo le forme non sono già date e anzi c'è un processo di formazione al termine del quale una forma compiuta è acquisita, ma propriamente di termine del processo di formazione non si può parlare, dal momento che tale forma deve essere mantenuta), l'essere *formale, strutturale*. Blumenbach però si allontana più dalle forme "classiche" di

⁶ Sul rapporto tra Kant e Blumenbach, cfr. Lenoir 1980. Per un approfondimento della questione, che qui resta marginale, dello statuto epistemologico del *Bildungstrieb* nei due autori, cfr. Richards 2000 (la cui posizione è in aperta polemica con Lenoir).

preformismo che da teorie come quella di Bonnet: se è vero che non si dà una forma innata, ma solo una tendenza innata ad assumerla, è anche vero che si tratta di una tendenza o impulso ad assumere una propria *forma determinata*, laddove questa determinazione, proprio come nella teoria di Bonnet, sembra avere a che fare con il genere dell'organismo in questione [Blumenbach 1992, 136].

Nella teoria del *Bildungstrieb* c'è infine un particolare rapporto tra forma e materia, tra l'impulso formativo e la materia che esso deve organizzare e in cui viene suscitato [Blumenbach 1789, 24]: da un lato i due non esistono separatamente, dall'altro c'è un'irriducibilità del *Bildungstrieb* alla materia, in quanto esso è una *Lebenskraft*. Come altre forze (contrattilità, irritabilità, sensibilità, *vita propria*) [Blumenbach 1787, 31-36], esso è una forza vitale non nel senso di un principio imposto dall'esterno alla materia, ma nel senso in cui attraverso di esso «gli organi mantengono una recettività agli stimoli e la relativa capacità di movimento» [Blumenbach 1791, 10]. Non è però questa capacità di mediazione tra recettività e spontaneità garantita agli organismi dalle forze vitali, che è stata descritta come una capacità di adattamento funzionale [Lenoir 1980, 85], a distinguere il *Bildungstrieb* dalle altre forze vitali. Già nelle *Institutiones* esso viene descritto come una forza particolare che infonde una certa forma nel senso che funge da principio direttivo dell'organizzazione anche rispetto alle altre *Lebenskräfte*, alle loro funzioni [Blumenbach 1787, 35-36]. In questo senso esso sembra un principio architettonico di organizzazione, sia per questa sua funzione gerarchica sia poiché esso sembra avere un carattere di finalità, distinto da quello di una strutturazione cieca: tale carattere è evidente nel momento in cui Blumenbach distingue *Bildungstrieb* stesso da una *bildende Kraft*, una forza meccanica che agisce anche nel regno inorganico, per esempio nei processi di cristallizzazione, in quanto invece esso «è in grado di organizzare in forme determinate la varia materia della generazione, suscettibile di organizzazione, in modo vario ma costantemente modificato in senso finalistico» [Blumenbach 1799, 17-18, trad. mia].

Rivolgiamoci ora alla *Critica del Giudizio*. Secondo Kant l'organismo è un fine naturale, ossia un fenomeno che possiamo pensare solo secondo un tipo di causalità particolare, *come se* esso fosse causa ed

effetto di se stesso. Questa particolare causalità è evidente in tre processi che vanno sotto il titolo generale di “generazione”: la riproduzione, in cui l'albero, per esempio, si riproduce come genere; la crescita, in cui l'albero è causa ed effetto di se stesso in quanto individuo, dal momento che nel processo di nutrizione che ne determina lo sviluppo la materia non viene incorporata così com'è, grezza, bensì subisce un processo di elaborazione nel quale può essere riscontrata un'originalità della facoltà di divisione e formazione (*Bildungsvermögen*) dell'albero stesso, non riconducibile al meccanismo naturale della mera materia; la conservazione, per esempio dell'albero stesso mediante il processo di fogliazione [KU, AA 5:369-372 (587-591)]. In particolare nel secondo processo è evidente un'affinità con quanto è stato detto a proposito del rapporto tra forma e materia in Blumenbach. Poco più avanti Kant giungerà dunque alla conclusione che un ente organizzato è un «ente che si organizza da sé», che «possiede in sé una forza formante (*bildende Kraft*)», che si propaga, si comunica alle materie che non l'hanno e le organizza, e non può essere spiegata mediante il meccanismo [KU, AA 5:372-375 (595-597)].

Abbiamo qui la seconda occorrenza di un *Bildungsvermögen* o di una *bildende Kraft* che sembra avere molto in comune con il *Bildungstrieb* di Blumenbach, se non fosse che proprio da una *bildende Kraft* meccanica lo studioso di Gottinga ha distinto il proprio impulso formativo. Sarà proprio Kant a ricordare questa distinzione da parte di Blumenbach, in un passo che effettivamente sembra debba essere interpretato in direzione di un'identificazione della *bildende Kraft* kantiana con il *Bildungstrieb*. Il luogo in cui questa considerazione occorre è quello della discussione del modello epigenetico, che viene presentato da Kant come una forma di prestabilismo, precisando però che si tratta di una preformazione generica. Nella teoria dell'epigenesi, l'organismo è *prodotto* e non semplicemente *edotto* dai propri progenitori; in essa, si precisa, «la facoltà produttiva dei generanti, e dunque la forma specifica, era pur preformata *virtualiter* secondo le disposizioni finalistiche interne che furono assegnate al loro ceppo [*Stamme*]» [KU, AA 5:421-423 (723-727)].

Abbiamo ora, credo, tutti gli elementi per uno sviluppo dell'analogia con l'intelletto quale sistema dell'epigenesi. Per prima cosa, possiamo

considerare il rapporto che intercorre tra intelletto e categorie come quello tra l'organismo e le sue forme, configurazioni determinate, nella teoria dell'epigenesi: così come gli organismi non sono preformati, allo stesso modo non c'è un intelletto in cui preesistano concetti che vengono soltanto sviluppati; l'intelletto acquisisce le proprie categorie nello stesso modo in cui nella teoria epigenetica l'organismo assume progressivamente una forma determinata; così come nell'epigenesi il principio dell'assunzione di questa forma non ha un'origine esterna, eterologa, contrariamente al caso della *generatio aequivoca*, così le forme che l'intelletto assume, le sue categorie, non sono derivate dall'esperienza, bensì sono il prodotto di un'attività riconducibile ad un principio interno all'intelletto stesso. Sia nella teoria di Blumenbach sia in quella di Kant persiste ciò che ad un primo sguardo potrebbe sembrare un residuo del sistema di preformazione, che però può essere spiegato come il prodotto dell'interazione continua tra i due modelli. In altre parole, se non ci sono forme preformate o prestabilite in senso stretto, c'è però una preformazione virtuale delle forme secondo *Anlagen* interne finalistiche proprie di ciascun genere; se non c'è una configurazione, una forma già in atto, sono perlomeno preesistenti le *Anlagen* per produrle, il cui dispiegamento, cioè, permette il passaggio dalla virtualità della forma alla sua effettiva realizzazione. Posto che Kant fa riferimento a delle *Anlagen* dei concetti puri dell'intelletto, possiamo dunque dire che se seguiamo le categorie fino ai loro primi germi, come promette di fare Kant, non troviamo le categorie stesse, già pronte, ma solo delle *Anlagen* per la loro produzione.

Il passo successivo nello svolgimento dell'analogia è dunque comprendere con che cosa possano essere identificate queste disposizioni per le categorie nell'intelletto, che si configurano anzitutto come disposizioni ad un'attività interna che ha come prodotto le categorie. Questa attività peculiare ha per Kant il nome di spontaneità della conoscenza o spontaneità del pensiero: affermare che i concetti sono fondati sulla spontaneità del pensiero vuol dire affermare che essi si basano su funzioni dell'unità tra le nostre rappresentazioni degli oggetti. Tale funzione dell'unità consiste nel giudizio [*KrV* A 51/B 75; A 68-69/B 93-94 (166-169; 188-193)]. La mia proposta consiste dunque nel considerare il Giudizio come *Anlage* dei concetti, ossia una disposizione

all'attività del giudicare mediante la quale i concetti stessi sono prodotti in quanto predicati di giudizi possibili. L'analogia della funzione del giudizio nell'intelletto con il ruolo del *Bildungstrieb* all'interno dell'organismo è duplice: il Giudizio è infatti principio dell'intelletto come facoltà dei concetti nella stessa misura in cui il *Bildungstrieb* è sia principio di strutturazione dell'organismo sia principio in senso epistemologico per la comprensione sistematica di esso. Quest'ultimo valore del Giudizio come principio inteso come filo conduttore è particolarmente evidente nella *Critica della ragion pura*, tanto forse da oscurare la sua funzione come principio nel primo senso, ossia l'effettivo ruolo del giudizio non soltanto nella «scoperta» delle categorie [KrV A 66-67/B 91-92 (188-189)], ma anche nella loro genesi. Che il Giudizio abbia anzitutto una funzione descrittiva si evince dal fatto che la ricerca kantiana sui concetti puri dell'intelletto ha come punto di partenza l'uso di essi – che avviene appunto nel giudizio. Del resto, però, questa possibilità di comprendere il carattere peculiare dell'intelletto a partire dal suo uso è il riflesso di una particolare concezione delle categorie e del loro principio che ancora una volta ha un'affinità con la teoria di Blumenbach: la concezione epigenetica associata al *Bildungstrieb* non è in grado soltanto di rendere conto della produzione di una forma *una tantum*, ma, in quanto si fonda su un impulso che ha carattere permanente, anche del suo progressivo perfezionamento e del suo mantenimento; traslando questa concezione sulla questione delle categorie, possiamo dire che in un sistema dell'epigenesi della ragione la loro apriorità non è intesa come apriorità di un possesso, di un equipaggiamento dell'intelletto, bensì come prodotto di un'attività costante, permanente dell'intelletto stesso nella sua funzione di sintesi delle rappresentazioni, come una configurazione sempre da farsi dell'intelletto stesso.

Se finora abbiamo considerato come *Anlage* dei concetti la disposizione ad una peculiare attività interna al solo *pensiero*, Kant afferma però che per la costituzione dell'esperienza c'è bisogno di una *materia* della conoscenza, derivante dai sensi, e una certa *forma* per ordinare questa materia, derivante dalla sorgente interna del *puro intuire* e del *pensiero*, che in occasione dell'esperienza producono concetti [KrV A 86/B 118 (222-223)]. Sembra quindi che le *Anlagen* dei concetti non siano da ricercare nel solo pensiero, ma anche nell'intuizione pura.

Quest'interpretazione è plausibile nell'alveo dell'analogia tra intelletto e organismo che si sviluppa per epigenesi: già nello scritto del 1775 *Sulle diverse razze degli uomini* il termine *Anlage* sta ad indicare una causa dello sviluppo dell'organismo che però, a differenza di *Keim*, non riguarda una parte specifica, bensì il rapporto delle parti tra di loro [*VvRM*, AA 2:434 (11)]. Quanto questo significato di *Anlage* sia determinante per Kant lo si può comprendere considerando che, se Kant paragona la ragione ad un corpo organico in cui ogni membro è in relazione con la totalità, per cui ogni modo della ragione deve essere indagato in rapporto alla totalità dell'uso puro della ragione, ossia in relazione agli altri modi di essa, alle singole capacità che la compongono [*KrV* B XXII (42-43)], tale prescrizione deve dunque valere anche per l'intelletto.

Queste *Anlagen* nella teoria kantiana dell'epigenesi hanno sostanzialmente due contrassegni: sono finalistiche e sono assegnate ad un determinato ceppo, cioè in qualche modo preformate genericamente. Riguardo a questo secondo punto, mi sembra si possa trovare una conferma sia dell'identificazione delle *Anlagen* tanto con il pensiero quanto con l'intuizione pura, sia di una loro certa "preformazione", in quanto Kant scrive nel §21 della Deduzione trascendentale:

Per quanto riguarda invece quella peculiarità del nostro intelletto, per cui esso realizza a priori l'unità dell'appercezione solo mediante le categorie, anzi solo mediante questo tipo e questo numero di categorie, non ci è possibile dare una ragione, così come non si può spiegare perché possediamo queste e non altre funzioni dei nostri giudizi, o perché tempo e spazio siano le uniche forme di un'intuizione possibile per noi [*KrV* B 145-146 (258-259)].

Per quanto nel sistema dell'epigenesi l'intelletto si mostri, proprio come la natura negli organismi, non solo come sviluppantesi ma anche in una certa misura come autoproducentesi, al fondo troviamo una fatticità di esso che non è possibile spiegare ulteriormente: delle sue *Anlagen* non possiamo dare ragione.

Per quanto riguarda invece la *finalità* delle *Anlagen*, nel caso dell'intelletto può assumere significati diversi. Esse possono essere intese

come disposizioni, capacità, orientate finalisticamente alla produzione di concetti e, per mezzo di essi, alla costituzione dell'esperienza, oppure l'analogia con il *Bildungstrieb* riguardare qualcosa di analogo al rapporto tra il *Bildungstrieb* e le altre forze, in cui il primo svolge il ruolo di un principio architettonico: possiamo cioè chiederci se, all'interno dei vari modi della ragione che bisogna considerare nella loro totalità, non vi sia un modo – una facoltà, se vogliamo adottare un linguaggio più rigido – che in un certo senso svolge una funzione direttiva rispetto agli altri. Non è possibile forse pensare in questo modo il rapporto tra l'intelletto stesso e l'immaginazione, che è definita una funzione cieca [*KrV* A78/B 103 (202-203)]? E ancora: il rapporto tra intelletto e immaginazione deve essere pensato come perfettamente corrispondente a quello tra un *Bildungstrieb* e una *bildende Kraft* cieca, una spontaneità meramente inorganica? O, forse, il confine tra intelletto e immaginazione è meno rigido di quanto si possa pensare e il principio, per così dire, che li anima non è diverso, bensì è presente in ciascuno in gradi diversi? La questione non è facilmente decidibile: da un lato Kant caratterizza la sintesi dell'immaginazione come un esercizio della spontaneità [*KrV* B 151 (266-267)], dall'altro lato afferma che l'immaginazione appartiene alla recettività e che la riconduzione della sua sintesi a concetti (e dunque la costituzione dell'esperienza in quanto tale) è possibile solo mediante l'intelletto [*KrV* A 78/B 103 (202-203)].

In tale rapporto di recettività e spontaneità evidente nell'immaginazione si mostra un importante parallelo con Blumenbach, per il quale la caratteristica fondamentale delle forze vitali consiste proprio in una funzione di mediazione tra recettività e spontaneità, in una funzione che è al contempo reazione agli stimoli e attivazione di una capacità propria, e con Tetens e la sua idea di una forza originaria intesa come al contempo spontaneità ed eccellente modificabilità. Nell'*Opus postumum*, tornando su questo che è un vero e proprio *topos* della sua filosofia, Kant arriva a dire che «spontaneità e recettività, rapporto oggettivo e soggettivo, [...] sono dati *a priori* nello stesso *actus*, e progrediscono verso l'esperienza come sistema di percezioni» [*OP*, AA 22:466 (198)].

Ora, noi sappiamo che almeno in senso cronologico l'esperienza è però prima di tutto un insegnamento per l'intelletto [*KrV* A 1 (76-77)];

l'analogia con l'organismo, e in particolare con la funzione nutritiva per com'è descritta da Kant, per quanto forse inizialmente possa sembrare viziata da una forte dicotomia tra interno ed esterno, soggettivo ed oggettivo, ci permette di pensare proprio questo rapporto tra esperienza ed intelletto in modo diverso: è uno solo l'atto mediante il quale siamo ricettivi nei confronti di ciò di cui facciamo esperienza e costituiamo, spontaneamente, l'esperienza come sistema di percezioni, è un atto che contempla diversi livelli di sintesi, che procedono da ciò che sembra mera recettività al massimo grado di spontaneità, allo stesso modo in cui nella nutrizione di un organismo la materia che viene incorporata è prima di tutto elaborata secondo un principio interno. Ciò non significa che la costituzione di un tale sistema dell'esperienza sia semplicemente il prodotto arbitrario di un'attività secondo forme o disposizioni meramente soggettive: in questo stesso processo è ciò che potremmo definire il soggettivo stesso, l'intelletto, a prodursi come sistema di forme per l'esperienza.

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Kant's conception of understanding as organic spontaneity. The epigenesis of pure reason, starting from a comparison with Tetens and Blumenbach

Keywords

epigenesis; understanding; Kant; Tetens; Blumenbach

Abstract

This paper's aim is to clarify Kant's conception of understanding as spontaneity, specifically as a system of the epigenesis of pure reason, by means of a discussion of the notion of epigenesis in its original context – the theories regarding the generation, growth and development of organisms, particularly in Tetens and Blumenbach – and its analogy with the origin of the pure concepts of understanding (as well as their relationship with experience). First, I focus on the tension between a preformationist model and an epigenetic one underlying the Analytic of Concepts, tracing it back to the lively debate concerning generation in the 18th century biology. In this framework I consider the role of Johann Nikolaus Tetens, a Lockean empirical psychologist, whose *Philosophische Versuche* is crucial for Kant's own development of the notion of epigenesis, although, as I argue, there is a distance between his and Kant's meaning of the organic analogy. Finally, I examine Johann Friederich Blumenbach's theory of *Bildungstrieb* and its similarity with the kantian account of organism in the *Critique of Judgement*: the aim is to highlight the main features of both theories and employ them as analogical terms of comparison to reflect retrospectively upon pure understanding as a system of epigenesis.

Carolina La Padula
Università di Pisa
E-mail: c.lapadula@studenti.unipi.it
carolina.lapadula@gmail.com

KIRILL LESHCHINSKII & LEONARDO MASSANTINI

NOSTALGIA, SITUATED AFFECTIVITY
AND MUSEIFICATION

TABLE OF CONTENTS: 1. *Introduction*; 2. *Nostalgia, memory and imagination*; 3. *Situated affectivity and affective niche construction*; 4. *Nostalgic niche*; 5. *Museums, mind invasion and nostalgia*; 6. *Conclusion*.

1. *Introduction*

In this article, we analyze how structures that are generally considered supports of memory and historical account, such as photographs and museums, can actually scaffold nostalgia. We aim to do so by expanding on the methodology introduced in Massantini [2020], which analyzes nostalgia through the lenses of the contemporary philosophical framework of situated affectivity. Conceptually, situated affectivity stems from the framework of *situated cognition* which, broadly, comprises the so-called ‘4E’ approach to human cognition.¹ The expression ‘4E’ refers to the fact that cognition and affectivity are inherently *embodied* (grounded in one’s *extracranial* body), and can also be *embedded* (reciprocally-determined by a specific environment/situation), *enacted* (dynamically and meaningfully disclosing a given environment/situation) and *extended* (ontologically transcending the boundary of an organism; co-constituted by the environment).²

The present study is concerned primarily with the situated nature of affectivity (especially nostalgia) in one’s interaction with the

¹ See Stephan & Walter 2020 for an introduction to situated affectivity and see Newen, de Bruin, Gallagher 2018, for a more comprehensive overview.

² Scholars in the 4E field hold heterogeneous positions. For instance, while all support the idea that cognition is embodied, they however discuss whether it can extend into the environment (i.e., it can be co-constituted by the environment), or can be at most embedded (i.e., co-caused by the environment). Moreover only a few support enactivism.

environment. Any inquiry into our affective life cannot be reduced to mere investigation of underlying intrabodily processes, decoupled from contexts/situations in which affects emerge and develop. Rather, such inquiry should take extra-organismic contextual factors into consideration as well. Importantly, the claim here is not simply that affects are responses to various passive triggers scattered in the world, as that is a trivial proposition to defend. Instead, we are interested in cases where the environment «contributes to emotions in a way incompatible with traditional accounts» [Stephan et al. 2014, 71]. That is, we focus on cases where the environment asserts an active role in structuring and maintaining one's affective life, as well as in providing resources for external manipulation of one's affectivity by other persons [e.g., Griffiths & Scarantino 2009; Slaby 2016]. Situated affectivity has given birth to several theoretical frameworks, two of which will be particularly relevant in our present inquiry: the theory of *affective scaffolding and niche construction* [Colombetti & Krueger 2015] and the theory of *mind shaping/invasion* [e.g., Stephan & Walter 2020; Slaby 2016].

In section 2, we highlight some fundamental aspects of nostalgia, discuss its connection to memory and imagination, and outline some of its possible causes and functions. After a brief introduction of situated affectivity in section 3, in section 4 we proceed to apply the notion of affective niche to nostalgia. This is intended to show how one can actively use and even structure the environment to induce and sustain the feeling of nostalgia. We also show how the functioning of nostalgic niches may effectively lead to a renarration of the subjects' identities. In section 5, we show how one can employ nostalgic scaffolding provided by third persons by focusing on the case of museification. The aim is to see whether this can lead to unforeseen manipulations, and how it may resemble what Slaby calls *mind invasion*.

Frameworks of situated affectivity provide a conceptual toolbox, equipping one to study various ways in which affects can be intentionally invoked and maintained via external structuring. This is particularly relevant for nostalgia, as in the current debate the environment is often conceived as too static.

2. *Nostalgia, memory and imagination*

Nostalgia is a bittersweet affective phenomenon. On the one hand, in nostalgia the object (i.e. the past) is presented as tragically irretrievable [Jankélévitch 1974] and therefore as a source of pain. On the other, the past is also presented as an idealized time, the contemplation of which can be pleasurable. The way in which the past is nostalgically made present to consciousness is similar to recollection, but cannot be reduced to it. Here in particular we will focus on imagination, which plays a central, yet different, role both in recollection and nostalgia. To better understand this point we should take a closer look at Martin & Deutscher's [1966] *causal theory of memory* and at the reasons why many scholars now question it. According to this theory, remembering consists in a direct retrieval of a representation of some past event reliably stored in one's memory. In this view, for a memory to be genuine there has to be a tight causal connection between one's current representation and one's original experience of the remembered event. Such causal connection is supposedly provided via an uninterrupted, continued storage of episodic representations in one's memory.

Since then, however, such a static notion of memory has been challenged, and many scholars argued that there is no need for a causal connection in episodic memory. For example, the *narrative theories of memory* [Goldie 2012] show that in practice there is hardly any *pure* remembering: the intentional act of remembering is always already modified by imagination and affectivity. The role played in recall by imagination and affectivity is best exemplified in the distinction between *field memory* and *observer memory* [Goldie 2012, 49]. While in field memory a person remembers the past *from the inside*, i.e. directly from her internal perspective, in observer memory she remembers the past *from the outside*, i.e., becomes a part of the observed scene, the narrator and the protagonist at the same time. Goldie argues that observer memories are no less genuine than their counterparts. According to him, such memories are possible due to the work of imagination that helps one to objectivize oneself in remembering. Moreover, both field and observer memories can be subject to the influence of person's affective perspectives. For example, one can remember one's yesterday's failure at an exam through the emotionally-colored lens of shame or

disappointment. Memory is neither static nor an objective representation of the past; rather, remembering is a dynamic process that discloses the past in a chimeric appearance and that is always co-determined by the perspective from which we recall the past. Hopkins [2018] comes to a similar conclusion in regard to the interaction between memory and imagination. He advocates that episodic remembering is at a certain level phenomenologically indistinguishable from imagining, and thus defines episodic memory as «in key part, imagining the past» [Hopkins 2018, 46].

It is evident that in both nostalgia and memory imagination plays a major role. However, a mere recollection and a nostalgic experience differ in how imagination operates. In a non-nostalgic recollection imagination can bring in all sorts of changes (confusing dates, misplacing people, confabulating facts and so on) but can also have an epistemic function [Arcangeli & Dokic 2018].³ In nostalgia imagination is directed specifically at a renarration of the past as an ideal time. For instance, on the one hand, a recollection of our childhood can be unconsciously modified by imagination in various ways to the extent of generating false memories which are not necessarily happy ones. Through selecting, revaluating and weaving together memories nostalgia creates an ideal past [Massantini 2020]. More specifically, a nostalgic person feels that the past bears a specific relevance to her present identity; in the past the nostalgic person sees the foundation of her desired identity. A nostalgic person longs for the past because she feels that the present lacks something fundamental to her desired identity. The nostalgic person locates this fundamental thing in the irrevocable past.

Both nostalgia and the past it constructs are dynamically related to a wide range of moods and emotions. It could be argued that depressive and *ruminative* moods are ideal for promoting nostalgia. As a matter of fact, numerous scholars have suggested that nostalgia serves as a coping mechanism for certain affective states, such as depression or loneliness [Wildschut et al. 2006; Garrido 2018]. As it is in the case

³ Imagination can fill in the gaps in our episodic memory and thus provide knowledge about one's own past, as long as imagination is rationally constrained by the subject present perspective [see Arcangeli & Dokic 2018].

of anxiety, nostalgia can also be a reaction to a mood that is *opposite* to it. Davis [1979] first proposed this concept, in the so-called *discontinuity hypothesis*. He asserts that nostalgia develops as a coping mechanism during periods of existential crisis marked by deep worry. The discontinuity hypothesis and other approaches derived from it are problematic: they oversimplify nostalgia and turn it into a merely positive affective state, yet nostalgia can also intensify the sensation of longing and desperation that a person already feels [Trigg 2020; Garrido 2018]. Nostalgia is not always a psychological resource for well-being (though it can sometimes be), as it is a bittersweet emotion. Indeed, it would be more appropriate to say that nostalgia can be a source of wellbeing as much as a source of suffering. This is because, as the name nostalgia – which literally means *longing for homecoming* – suggests, this emotion is first and foremost a longing for a world that no longer exists. At the same time, we can consider nostalgia as an affective phenomenon that contains a pleasurable component that can compensate its more painful aspect. This is because nostalgia not only is very keen on showing us what we no longer have, but also creates an image of that lost time so idealized, warm and familiar that we feel comfort in indulging in its contemplation.

3. *Situated affectivity and affective niche construction*

Nostalgia can be better understood in the light of the theories of situated affectivity, according to which our affectivity is not a process bound to the brain alone – it also includes processes that take place in the rest of the body and the environment. Therefore, we should not consider the environment merely (or exclusively) as a passive trigger for our internal emotional responses. Particularly insightful is the work of Colombetti and Krueger [2015] who formulate the concept of *affective scaffolding* by drawing on the framework of the *scaffolded mind* introduced by Sterelny [2010]. According to Sterelny, cognition is inherently environmentally supported. This means that we can actively structure our environments in order to enhance our cognitive capacities. For example, we scaffold memory by arranging objects in ways that facilitate memorizing or recalling [Clark 2005], and use notebooks to

keep important information when our biological memory is impaired [Clark & Chalmers 1998]. Such epistemically motivated modifications of the environment lead to the construction of *cognitive niches* [Sutton 2016; Bertolotti & Magnani 2017]. A cognitive niche can be defined as a set of epistemically relevant resources, employed by human beings to meet their cognitive needs. Constructing a niche is typically not a one-way process: beyond serving its intended purpose, an established niche begins to exert reciprocal influence on subjects, giving rise to the so-called «feedback cycles» [Odling-Smee et al. 2003].

Extending this framework to affectivity, Colombetti and Krueger analyze how external resources are used to generate and regulate their affective states. They provide various examples of affective scaffolding such as carrying a handbag (e.g. with a talisman, love note or blemish cream) that «functions as a [...] self-styled collection of technologies specifically chosen for regulating affect» [Colombetti & Krueger 2015, 1163]. Due to the relatively flexible structure, affective scaffolding can be implemented through a variety of resources, such as drugs, diaries, smartphones, narratives, rituals, paintings, photographs, animals, other people, and so forth.

Akin to how cognitive scaffolding forms cognitive niches, the process of affective scaffolding engenders *affective niches*. Colombetti and Krueger define affective niches as «instances of organism-environment couplings (mutual influences) that enable the realization of specific affective states» [*ibid.*, 1160]. However, some scholars regarded the definition problematic, since it appears to emphasize the individual while overlooking the *collective* dimension of affective scaffolding and also pictures the individual as implausibly autonomous from complex (sometimes detrimentally invasive) influences of the environment [Slaby 2016; Nagatsu & Salmela 2022]. Conversely, collective affective niches emerge in the process of the dynamic interaction between individuals or groups. This renders the functionality of such niches increasingly varied, highly distributed and decentralized.

Openness to influences from affective scaffolds is partly determined by various factors, including: one's *trust* in their reliability, the level of the *individualization* or *incorporation* of scaffolds in one's self-narrative, the explicitness of one's intent to use the scaffold [Coninx & Stephan

2021]. The significance of the environment in the nostalgic experience has been discussed already. Trigg [2012], for instance, points out the vital capacity of place to «crystallize the experiences that occurred there» [Trigg 2012, 9]. Partly due to such crystallization of the lived past in *place memory*,⁴ the nostalgic person may be able to attend (albeit not fully) to an object of his nostalgia through the materiality of place one more time. Acknowledging the dynamic experiential (vs. static representational) character of place memory as well as its epistemic relevance for a person's self-understanding, Trigg conceives of place as «more than inert materiality» [*ibid.*, 6] and argues for its experiential understanding. We can go beyond Trigg's account by stressing the importance of particular ways in which (nostalgic) subjects can actively engage with the environment, overcoming its pre-givenness and instead endowing it with new (affective) meanings. In this endeavor, the framework of affective scaffolding could prove fruitful.

4. *Nostalgic niche*

In this section we analyze how nostalgic structuring can be achieved through the mediation of and dynamic interaction with external nostalgic niches. By *nostalgic niche* we mean an affective niche that either helps a subject to alleviate her longing for the past, or enables her to elicit and sustain nostalgia externally. Furthermore, we consider how the renarration of one's past, implicit in nostalgia itself, can be facilitated (not always intentionally) by such kind of affective structuring.

For the most part, nostalgia is described in the current debate as an involuntary affective phenomenon. However, sometimes a subject can resort to reliable external resources (scaffolds) to elicit and modulate nostalgic feelings. Consider the following example:

Julia, a young medical doctor, is overwhelmed with the pressure she is currently experiencing at work to the point where she forgets what it was all for, although she always found her work

⁴ According to Trigg 2012 place memory is a form of remembering in which place is both the context of memory and the very texture of the specific content itself.

important and meaningful. She comes home disheartened and opens a photo folder on her computer that contains photos from her college days. She purposefully created that folder right after graduation and since then has occasionally resorted to it in times of existential crisis. Not only that, over time she also refines the folder, adding content that makes her feel better and sometimes excluding material she added previously. The photos in the folder represent the time when Julia was full of hope and determination: it was then when she decided to devote herself to medicine.

The photo folder comprising the photos from her college past is Julia's nostalgic niche, i.e. an external resource she created to regulate her affective condition when necessary by eliciting and sustaining the feeling of nostalgia. Serving as a nostalgic niche, the affectively-loaded photographs remind Julia about the genuine motivations behind her work and through that, encourage her to carry on. Like a bridge between her past and present, the nostalgic niche allows Julia to maintain a particular conception of her sense of self through time, which, among other things, induces the feeling of security and preserves the sense of existential meaning. Julia, therefore, often finds the nostalgic niche to be generally beneficial for her psychological well-being.⁵

When she had first started making the album, and later when she revised it, Julia selected photos that elicit comforting nostalgic feelings in her. At the same time, she removes photos that would presently make her feel bad. For instance, when she first made the album, she included there many photos with her now ex-boyfriend. Yet, instead of eliciting comforting nostalgic feelings, those pictures now evoke in Julia feelings of sadness and anger about her ended relationship. Because these negative feelings do not comply with the purpose of the niche, Julia decides to remove them. Thus, when structuring her nostalgic niche, i.e. choosing which photos to include in her e-album and which not, Julia can determine (to some extent, at least) how her college past would be nostalgically seen by her in the future. That is, she is free to select

⁵ Massantini [2020] discusses a similar example in which looking at old photographs is described as «unidirectional material tool for emoting» [Stephan & Walter 2020]. The difference here is that Julia, unlike the example in Massantini 2020, *purposely selects* the pictures *over time* to feel nostalgic.

particular fragments of memory from her college past and consolidate them into a new narration of that past. In effect, the nostalgic niche Julia has established not only serves to regulate her emotional state every time she clicks on the folder and dives into those pre-selected episodes. More than that, being a collection of specifically positive images, the nostalgic niche gradually renarrates Julia's nostalgic past. This is possible because the narrative we construct about our past is not a store of static representations but rather an ever-changing flow susceptible to being modified and rewritten. It is interesting to note that, because photographs are (typically seen as) objective depictions of the past, they are often treated by a subject as reliable sources, which may lead to further facilitation of the renarration.

Providing an idealized version of her college days, Julia's nostalgic niche can reinforce her nostalgia by making her past look particularly appealing. However, the niche can also have an impact on the way Julia perceives herself *in the present*. Modulated by nostalgia, Julia's renarration of her past subsequently alters her present sense of self. Ultimately, we see that while nostalgic niches can serve a function of synchronic (i.e. real-time) scaffolding of one's nostalgia, they can perform an even more substantial function of diachronic (i.e. stretched in time) modulation of one's representation of the past and, subsequently, one's perception of oneself *both* in the past and in the present [see Griffith & Scarantino 2009].

Julia willingly creates a niche to support an affective phenomenon (i.e. nostalgia) that is not only pleasurable, but also painful. After all we saw that Julia excludes some photographs because they now elicit unpleasant memories, yet she is more than willing to accept and even pursue the pleasurable component of nostalgia, despite it being inseparable from the painful one. Why doesn't she instead build a niche that supports exclusively positive feelings? Why would she chase nostalgic feelings, despite them also being painful? Those who tend to reduce nostalgia to a feel-good emotion might argue that in the case of nostalgia the pleasurable component simply outweighs the painful one, this however would drastically underestimate its complexity. Rather we think that nostalgia is always built on a loss. In its most radical sense this loss is the awareness that the past interpreted as a meaningful unity

is no longer available to us. The pleasurable component is caused by the realization that the past is not completely lost after all, but survives in the form of (reimagined) memories and, more importantly for our concerns in this paper, it survives in the form of media (such as photos) and material culture (such as the artifacts in a museum) with which we can engage and interact. When we build nostalgic niches we pursue a specific pleasure that helps us cope with the sense of loss, at the same time, this sense of loss cannot be fully overcome, because it is the condition of possibility of the pleasurable component of nostalgia itself (how can we feel relieved that the past is not lost after all, if we do not feel at the same time that for the most part that past no longer exists?).

The niche enables Julia to interact with her past the way she would not have been able to without it: by merely thinking about her college days *in general*, Julia might have failed to see how her past flows into her present in a meaningful and coherent way. In this we can also further clarify why nostalgia cannot be reduced to memory or the act of reminiscence. Indeed, the renarration of the past that nostalgia creates is always directed at locating in a wholly idealized past the foundation of our desired identity (in this case being a doctor). Instead memory and reminiscence, when not accompanied with nostalgia, can present a renarration of the past that does not necessarily idealize the past or present it as the foundation of a desired identity. For instance when reminiscing without nostalgia I can focus on my past failures, which are generally excluded in nostalgic renarration, since they are painful episodes that mine my identity, rather than reinforce it.

The past is constantly constituted in the present and in light of present expectations (e.g., fears, hopes, desires, life projects and so on). As we saw, in the case of Julia, this reconstruction is supported by the relationships she has with her photo album that she has carefully created. However, we also have to keep in mind that the photos in her album play an ambiguous role regarding discontinuity. On one hand, the photographs are not a reinscription of a past presence, they are rather an articulation of an absence, which therefore could induce a more melancholically painful nostalgia. On the other hand, the photograph offers a mediated connection to the past that works as a bridge between the subject and this lost time. As Massantini [2020] has already argued, while our memories can change

through time, the engagement with media from that time enables us to relate directly to that past in a way that remembrances cannot offer. Media provide the direct connection to and continuity with the past that a person who is nostalgic most longs for.

5. *Museums, mind invasion and nostalgia*

Museums and other forms of art space can influence or scaffold the visitors' affects and cognitions. For example, Gallagher and Crisafi [2009] claimed that museums can engender pre-established cognitive schemata which assume particular «cognitive extension» for their users beyond their own capacities. According to them, this is achieved by exhibiting art pieces in a particular order and thereby imposing certain cognitive patterns on visitors, i.e. structuring their perception when they walk through museum halls. Similarly, Richards [2017] presents museums as specific *engineered niches*. He also distinguishes several types of *technologies* that art-space engineering may employ to influence visitors, such as architectural, artefactual, cognitive, epistemic, pedagogical and institutional technologies. As a matter of fact, these technologies «form the conceptual basis for a niche-dependent normativity» [Richards 2017, 465], that is, they prescribe how one ought to conceive or experience a given piece of art. Extending on Richards' endeavor, Saarinen aims to broaden the analysis of museum functioning through describing «the ways in which art museums make us feel» [Saarinen 2021, 556]. Considering museum as a form of engineered *affective niche*, Saarinen draws on the taxonomy of affective scaffolding to demonstrate both the applicability of the framework to the artistic context as well as the heterogeneity of museums as affective niches.

But how can a museum scaffold nostalgia? A possible starting point to answer this question are accounts of social nostalgia, e.g. post-communist nostalgia, proposed by Dominik Bartmanski and Steven Ostovich. Bartmanski renders this kind of nostalgia not as a «merely private emotion or political reaction», but rather as a collective feeling. Furthermore, it has to be represented by symbolic material objects that are not to be taken as epiphenomena of nostalgia but are rather its *constitutive resources* [Bartmanski 2011, 215].

Focusing on the example of the so-called *Ostalgie*, an East German nostalgia for the communist past, Ostovich provides examples of consumer goods (e.g. bars of soap or egg cups) that bear the function of nostalgic scaffolds. Such goods are used by people to the day and are even collected in private museums. The nostalgia in those cases is claimed to be of political nature: despite often being inferior to the modern alternatives, those objects bear the hallmark of an idealized, desired past and at the same time are the expression of a protest against the capitalist present [Ostovich 2020]. As these examples show, some ordinary objects can apparently transcend their habitual functionality and acquire a socio-political meaning.

We view museums as social nostalgic niches where particular pasts become preserved and experiences get *crystallized*.⁶ Objects around us can, under duly maintenance, remain unchanged over time. In this regard, museums are the material manifestations of the past-worlds preserved in their genuineness and timelessness. But are the worlds that museums purport to preserve really genuine and authentic? We argue that the ways in which these past-worlds become (re)presented in museums are themselves always already renarrations of the past, sometimes even nostalgic renarrations.

Museums are socio-political institutions that normally present collections of pre-selected objects from some past. The selectiveness inevitably makes the museum an arbitrary representation of the past, a historical renarration. This renders museums epistemologically problematic, given their function to represent history. Moreover, the de-contextualization of artefacts in museums can generate a socio-political disorder and confusion [Boon 1991] and facilitate appropriation and alienation [Bjerregaard 2006]. Some museums, according to sociologist Roman Abramov, are products of «nostalgic and market fetishization» and represent nothing less than «a local version of retromania» [Zavatski et al. 2019, 314]. To see how these concerns about past museification are related to the subject of nostalgic mind invasion, consider the following situation.

⁶ Foucault has shown how museums are spaces built on the idea of «constituting a place of all times that is itself *outside of time* and protected from its erosion» [Foucault 1986, 26].

Ivan is a man in his sixties whose mother recently died. Ivan was born in Soviet Russia, and every Sunday when he was 6, his mother would take him to a local amusement park where a lot of arcade machines were waiting for him to play. By now, the park has been long closed, but there is a Museum of Soviet Arcade Machines that not only exhibits the machines but also allows its visitors to play with them. Eventually, Ivan decides to come to the place. The arcade machines and the process of playing with them gradually took Ivan over and back to his childhood. After this episode, Ivan started coming over to the place to relive his childhood each time when the longing would become unbearable.

Ivan uses an affective niche (museum) in order to alleviate his sense of longing. Two clear distinctions can be drawn between Ivan's and Julia's cases. First, while Julia aims to invoke nostalgic feelings to maintain a coherent autobiographical story, Ivan feels a painful longing and seeks to ease its burden via external nostalgic scaffolds. Second, and more relevantly, while Julia has created her nostalgic niche (the photo album) by herself, Ivan exploits an already available niche structured by third persons. Hence, while Julia's niche is highly private, Ivan's nostalgic niche is inherently collective and only becomes individualized by him during his interaction with it. In other words, while Julia's nostalgic scaffolding and past renarration stemming from it are driven by her own engineering, in Ivan's case, both are ultimately the result of someone else's work.

Exhibitors develop a specific «visual language» that mediates the interaction between «the collector, her objects, and those who experience the collection» [Hawkins 2010, 648]. What is being exhibited (and how) is necessarily refracted through the prism of those who create the exhibition, e.g. museum curators [see Hawkins 2010]. The unique vision of the founders of the Museum of Soviet Arcade Machines becomes necessarily materialized in the Museum's structure and inevitably affects the authenticity of the presentation. The resulting renarration inevitably modulates Ivan's own renarration of the represented time. Moreover, it externally scaffolds Ivan's nostalgia for that time in a specific pre-established way. Of all this, however, Ivan may remain totally unaware. Because Ivan's example presents

several differences from Julia's example, we are required to adopt more concepts than niche construction alone. One of these, *mind shaping*, is defined as «the external influence of others to steer the experience and behavior of a subject in a certain direction» [Coninx & Stephan 2021, 11] through the use of external scaffolds. In mind shaping we do not have a «user/resource model» [see Slaby 2016] in which subjects (users) can intentionally regulate their affectivity by actively structuring and engaging with their environment (as was the case with Julia's example). Instead, we have a model in which someone structures a resource (e.g. a scaffold or a niche) in way that it can influence affectively other users. While the person who structures the resource does so purposefully so that it can affect others, the users of the resource do not necessarily have to be aware that there are being "mind shaped". Mind shaping is neutral with regard to explicitly adverse intentions and behaviors of third persons that go against the goals and desires of affected individuals. However, describing museum engineering as mostly beneficial (e.g., enabling and enhancing our cognitive and affective capacities) might be too optimistic. When mind shaping is operated to the detriment of the subject and to the benefit of those who created or control the resource, we should speak of mind-invasion [Slaby 2016].

How can the Museum of Soviet Arcade be interpreted as a form of mind invasion? To answer this question we have to take into account the intent of museum curators to generate a nostalgia-eliciting environment that targets different audiences. For instance the nostalgic renarrations they offer can also invade the minds of those who have no nostalgia for the times they represent. One of the founders of the Museum writes the following about the motivation behind its opening: «We want our Museum of Soviet Arcade Machines to be a museum of childhood. [...] We want a place where people would like to come with their children. A place which works as a time-machine, so that a father who came to our Museum with his child can become a child himself for an hour or two» [Abramov 2018, 46; *our translation*]. In his article about the museification of the Soviet past, Roman Abramov provides an example of an 11-year-old girl who, having visited the Museum of the Soviet Past, left the following comment: «I used to think that the USSR sucks, but it is actually cool!» [Abramov 2013, 108]. According to the author, a

change in the perception of the Soviet period is not rare among children and teenagers after they visit such museums. Abramov views this as an outcome of a «strong nostalgic impulse» reflected in the ways the Soviet period becomes museified. Interestingly, he claims that the actual intention behind certain forms of museification of the Soviet past is «not factualization of the past but rather the nostalgic mythologizing through reflective nostalgia» [*ibid.*]. The notion of reflective nostalgia was proposed by Svetlana Boym. According to the typology outlined in her book *The Future of Nostalgia* [2001], there are two types of nostalgia: restorative and reflective. While the former strives to seek the truth and follow tradition, the latter questions both and is «more concerned with historical and individual time, with the irrevocability of the past and human finitude» [Boym 2001, 80].

The notion of mind invasion, taken in the strong sense, assumes that the external (affective) influence can (or is intended to) be detrimental for the invaded subjects by going against their own aims and desires and/or hindering their personal development. Museification of the past can sometimes be based upon a political agenda. Difficult pasts may get hidden, rewritten, and otherwise distorted via museum spaces by political authorities in order to hide their crimes, build alternative historical narratives and foster desirable national identities. For example, in his book *The War that Never Ends*, Machcewicz [2019] discusses how such manipulation via museum space takes place in different countries, especially under dictatorial regimes. The seemingly innocuous and festive atmosphere of the Museum of Soviet Arcade Machines in our case can be seen as a particular mode of presentation of the Soviet past, especially when some ugly truths from that past remain untold. But garbing dark history in brighter materiality is not the only way to manipulate the past. In her paper on the museification of Gulag – the repressive labor camps in the USSR – Vera Dubina provides an example of how the Gulag Museum was stripped of its real, material space by authorities, and had to be relocated into the virtual space [Dubina 2019]. This seems particularly harmful for impressionable young minds, highly susceptible to the selective ways in which the museified past gets represented. Meanwhile, the politically motivated renarrations seem to be facilitated by the nostalgia of museum curators as well as

nostalgic visitors like Ivan: their own affective dispositions may become a convenient loophole for those who seek to manipulate historical facts, national identities and, consequently, people's minds.

6. Conclusion

In this article we tried to demonstrate the complexity of nostalgia and its functionality by describing its relation to episodic memory, affect regulation capacity and identity maintenance. By means of the frameworks of situated affectivity, particularly, the notion of affective niche construction, we have shown how agents can use external resources to alleviate their nostalgia or benefit from it via affective scaffolding of their environments. Moreover, we have illustrated how one actualizes the meaning-giving property of nostalgia by intentionally creating a nostalgic niche that would provide a meaningful and coherent story of one's life. This, in turn, allowed us to see how nostalgic niches themselves can subsequently manipulate agents' renarration of the past and thereby actively shape and maintain their sense of identity. We further extended our inquiry to a social dimension. With the notions of mind invasion and mind shaping, we have demonstrated how nostalgia can be institutionally mediated, specifically by the case of museification of the past. In doing so, we have shown how a museum space (far from being a neutral and objective representation of the past) can be exploited by third parties to (intentionally and non-intentionally) renarrate historical pasts and manipulate (national) identities of the visitors on nostalgic grounds. Meanwhile, the visitors can remain fully unconscious of the affective influence exerted on them. All this vividly portrays how tricky nostalgia is and how diverse and far-reaching its implications can be, both for an individual and for society.

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Keywords

nostalgia; situated affectivity; affective scaffolding; museification; mind invasion

Abstract

In this article, nostalgia is studied within the contemporary theory of situated affectivity, which promises to offer new perspectives both on the nature and functions of nostalgia. We first introduce the phenomenon of nostalgia by focusing on some of its aspects relevant for the present discussion. Then, we articulate basic provisions of situated affectivity to establish a context for further analysis. In particular, we use two frameworks from situated affectivity – (1) affective niche construction and (2) mind invasion – to account for different modes of interaction between nostalgic agents and their environments, with a specific focus on the case of museification. The first framework is used to analyze how the environment can be intentionally structured by nostalgic agents: either to alleviate their nostalgia or otherwise instigate and maintain it externally. Here, a special attention is given to ways in which affective niches actively scaffold agents' nostalgia and renarrate their past. The second framework is intended to show how the environment can exert its affective influence on nostalgic agents without their conscious awareness. Through the case of the Soviet past museification, we consider how the nostalgia of museum curators effectively leads to unforeseen historical renarrations and affects memories of (nostalgic) visitors.

Kirill Leshchinskii

Department of Philosophy of Cognition, Institute of
Cognitive Science, Osnabrück University, Germany
E-mail: kirleshchinskii@gmail.com

Leonardo Massantini

Department of Civilizations and Forms of Knowledge, University of Pisa, Italy
E-mail: leonardomassantini@gmail.com (corresponding author)



ISSN 2284-2918