

# Boghossian, Bellarmine and Galileo: Historical evidence for epistemic relativism

## **Abstract**

Arguments against epistemic relativism tend to focus on a priori conceptual considerations. For those who defend relativism, however, their position is generally motivated by a thoroughgoing a posteriori study of empirical cases. In this paper, we investigate how such cases may reasonably be taken to provide grounds for relativism, by focusing on the Galileo/Bellarmino dispute and Boghossian's anti-relativist treatment of it. In keeping with the focus on a priori issues, Boghossian construes the dialectic between the relativist and anti-relativist in such a way that the actual historical details of the case become irrelevant. We argue, however, that a more thoroughgoing treatment of the historical case leads to a different understanding of the relativists's position, in such a way that the historical details do become relevant, and which allows relativists to address Boghossian's critique. The core issue is whether there is a certain kind of epistemic symmetry between Galileo and Bellarmine. We argue that the relevant symmetry does not pertain primarily to fundamental epistemic principles, but rather to ways of adjudicating between what these principles demand in a novel epistemic situation. Boghossian acknowledges the importance of such adjudicating principles for our epistemic practice, but does not fully appreciate their crucial role in the dispute, and thereby underestimates their philosophical significance. Once this is corrected, we attain a more nuanced picture of the sort of reconception of our epistemic rationality that the relativist is

after, and see how Boghossian's own absolutist position seems ill-equipped to deal with such matters of adjudication.

## 1 Introduction: Fear of history?

Why adopt relativism? It seems fair to say that epistemic relativism is regarded as deeply problematic by many analytic epistemologists. Nevertheless, a sizeable contingent of scholars in the humanities in general remain wedded to a form of epistemic relativism. In this paper, we wish to investigate one impetus for the adoption of epistemic relativism that remains somewhat neglected by analytic epistemologists: a careful study of empirical cases. Whereas analytic epistemologists tend to focus on a priori grounds in rejecting relativism, the relativistic stance adopted by relativist scholars generally goes hand in hand with a thoroughgoing study of specific empirical cases.<sup>1</sup> This is striking because – if one believes that the debate on relativism is to be decided on a priori grounds – such sustained and detailed study of empirical cases will inevitably appear to be wholly besides the point. In this way, there seems to be a mismatch between the sort of considerations advanced by analytic epistemologists on the one hand, and the empirical impetus underlying many relativist positions on the other.

In this paper, we aim to address this mismatch. We depart from the conviction that it is important to take seriously the way in which a careful study of empirical cases is taken to support epistemic relativism. The question then becomes: how is this supposed to work? We focus on one specific case that is prominent in the literature: the Galileo/Bellarmino debate on heliocentrism. We aim to show how historical evidence arising from a careful study of this episode can be reasonably taken to provide grounds for relativism.<sup>2</sup>

---

<sup>1</sup>See, e.g., (Geertz, 1984) for a forceful statement by Clifford Geertz, probably the most influential anthropologist of the last quarter of the twentieth century, who emphasizes that his “anti anti-relativist” position should be understood as something like a stance that is above all grounded in the study of anthropological cases, rather than a specific theoretical doctrine.

<sup>2</sup>A similar study could be done for anthropological, sociological, and other kinds of evidence

At first sight, this does little to bridge the gap between the a priori sort of considerations favoured by analytic epistemologists, and the a posteriori motivation for relativism yielded by empirical cases. We claim, however, that once it becomes clear how the latter are supposed to work, it can also be seen that the former are in danger of missing what lies at the heart of a historically motivated relativism. In order to take the full measure of what we regard as the most plausible versions of epistemic relativism, one must always keep in view both the conceptual issues and the considerations arising from a study of specific cases. There is a complex interplay between them, which we aim to bring out in this paper.

Of course, we cannot make this point in general, since that would require going through an exorbitant amount of literature on relativism.<sup>3</sup> That is why we choose to focus on one prominent anti-relativist view in the literature, i.e., that of Paul Boghossian, advanced in his *Fear of Knowledge* (Boghossian, 2004) and his further elaborations in (Boghossian, 2008b). Not only is Boghossian a paradigmatic anti-relativist epistemologist, his case is particularly well-suited to our aim for two further reasons. First, he explicitly targets scholars from the humanities whose relativism is inextricably intertwined with their study of specific cases.<sup>4</sup> Second, he attempts to do justice to their concern with such cases by providing a sustained discussion of the Galileo/Bellarmino debate. By focusing on Boghossian's treatment of relativism, then, we can narrow down our discussion, while its broader relevance for the debate on relativism remains intact.<sup>5</sup>

Boghossian characterizes epistemic relativism as the denial of the existence of abso-

---

<sup>3</sup>See (Baghramian & Coliva, 2019; Kusch, 2019) for representative overviews of recent philosophical literature on relativism.

<sup>4</sup>Boghossian opens his book with a case involving contemporary archeologists studying Native American culture, and proceeds to cite Shapin and Schaffer (authors of the influential historical study *Leviathan and the Air-Pump*) as well as Barnes and Bloor (main proponents of the Edinburgh school of sociology of science) as representative examples of the kind of thinkers he wants to criticize (Boghossian, 2004, pp. 2-3).

<sup>5</sup>Our main conclusions could be easily extended to other recent anti-relativist approaches such as (Carter, 2016; Seidel, 2014). (Kinzel & Kusch, 2018) have similarly criticized epistemological debates on relativism for suffering from a lack of attention to empirical details. We take our account to be largely complementary to theirs. Whereas we support our claims by using Boghossian's anti-relativism as a paradigm case, they attempt to set up a general theoretical framework for epistemic relativism in terms of what they call "situated judgment".

lute facts concerning justification. According to the epistemic relativist so understood, a piece of information only provides justification for a proposition relative to a particular “epistemic system”, with no further fact of the matter determining what is the right system to adopt. This in turn leads to the idea that “there are many radically different, yet “equally valid” ways of knowing the world, with science being just one of them” – an idea that Boghossian claims has been adopted within “vast stretches of the humanities and social sciences” (Boghossian, 2004, p. 2). Boghossian takes it to be the task of analytic philosophers to counteract this, by showing how a careful analysis of this thesis of “Equal Validity” reveals it to be mistaken or confused.

As said, Boghossian aims to do justice to the historical focus of the relativists he is targeting by addressing the Galileo/Bellarmino case. This makes it all the more striking, however, that he is nevertheless quite cavalier in his handling of the historical details of the case, to the point of openly admitting that he merely offers “some potted astronomical history” (Boghossian, 2004, p. 59). He relies on an outdated source (Giorgio de Santillana’s *The Crime of Galileo* from 1955), and feels free to disregard the historical facts even as reported there: contrary to what Boghossian suggests (Boghossian, 2004, p. 60), Bellarmine never refused to look through the telescope, but was careful enough to look for himself (as explicitly mentioned by de Santillana (1955, p. 28)), and moreover to ask the opinion of the expert astronomers at the Jesuit Collegio Romano.

Although Boghossian’s sloppy treatment of the historical evidence has been pointed out before,<sup>6</sup> we wish to take a step further and investigate its underlying philosophical presuppositions. In fact, although Boghossian appears to want to do justice to the historical considerations advanced by relativists, his own framing of the issue does not put him in a position to do so. As Boghossian sees the dialectic, historical evidence could not be relevant to assessing relativism. Thus, Boghossian feels safe to revert to the sort of approach which we believe cannot do full justice to the relativist’s position: that of focusing solely on the conceptual issues, while bracketing a posteriori historical con-

---

<sup>6</sup>See e.g. (Kinzel & Kusch, 2018; Kusch, 2009; MacFarlane, 2008; Seidel, 2014).

siderations as irrelevant. We aim to show that, in fact, the apparent legitimacy of such bracketing itself rests on the concomitant neglect of the historical details of the case. Because Boghossian treats the historical evidence too superficially, he fails to see how it shapes the relativist's position, and thereby misses their core concern.

What is that concern? In a word: adjudication. As Boghossian construes the thesis of Equal Validity, the relativist is focused on different epistemic systems that differ in their fundamental principles. We will argue, however, that the Equal Validity at issue does not pertain primarily to such fundamental principles, but to ways of adjudicating between those fundamental principles in novel epistemic situations, exactly the sort of situation in which Galileo and Bellarmine found themselves. Although the issue of adjudication is acknowledged by Boghossian as important, his failure to do justice to the details of the Galileo/Bellarmino dispute precludes him from seeing what the issue of adjudication amounts to in such cases, whereby he fails to appreciate its philosophical importance to the debate on relativism. As we will argue, a close study of the historical details reveals that the issue of adjudication is not a matter of weighing competing evidence – as Boghossian claims – but one of determining what counts as evidence for what to begin with. From there, we construe the main relativist claim as follows: it is not true that there is always, in any epistemic situation, one objectively correct way of adjudicating between fundamental epistemic principles.<sup>7</sup> The relevant thesis of Equal Validity, then, does not pertain to fundamental principles per se, but instead to ways of adjudicating between them. This reveals a different picture of relativism than the one Boghossian is operating with.<sup>8</sup>

---

<sup>7</sup>This immediately raises the question: is *this* thesis meant to be absolutely correct, or not? We address this point below in Section 4.3. In a nutshell: we think that our reconception of Equal Validity renders such questions less pressing than they are usually taken to be, since the prime concern of the relativist no longer lies with answering this sort of question negatively. This is one example of how the empirical details and the conceptual issues surrounding relativism cannot be cleanly separated.

<sup>8</sup>This has a further interesting consequence. On Boghossian's construal, Equal Validity is tied to doubt about the correctness of our own fundamental principles as squared against alternative sets of such principles. As is often discussed in the literature, such a characterization renders obscure the difference between relativism and skepticism (see e.g. (Carter, 2016)). We believe it is one of the virtues of our reconstruction that it distinguishes relativism more clearly from skepticism.

We start our exposition by taking a closer look at Boghossian's account, showing how it leads to the above-mentioned bracketing of historical evidence. As said, such bracketing only seems legitimate if one neglects the more fine-grained details of the historical case. Thus, we proceed to provide our own, somewhat less potted astronomical history, introducing those aspects of the Galileo/Bellarmino dispute – passed over by Boghossian – that motivate a relativistic conclusion. This puts us in a position to provide a more adequate construal of the relativist's position as revolving around the issue of adjudication, which allows us to further problematize Boghossian's account of the dialectic as well as to question some of his absolutist presuppositions, showing how historical evidence does put pressure on absolutism, once its philosophical import is correctly construed.

## **2 Boghossian on the relativistic argument**

### **2.1 The argument: circular justifications**

Boghossian reconstructs the relativist's argument as follows. It starts by noting that any argument that we could give for the superiority of our own epistemic system over alternative ones must rely on epistemic principles that we ourselves accept, and which therefore belong to the very system we are trying to justify. Thus, if we *are* confronted with an alternative system, there is a problem: "If we really do take our confrontation with an alien epistemic system to throw our system into doubt, and so to call for a genuine justification of that system, how could we possibly hope to advance that project by showing that our system is ruled correct by itself?" (Boghossian, 2004, p. 79). Since a genuinely alternative system is one that rejects our set of epistemic principles, we are stuck in a vicious circle: we cannot justify our principles without presupposing their validity, thus begging the question against the proponents of the alternative system. In such a situation of confrontation, therefore, it is no longer possible to arrive at justified

beliefs about which epistemic principles are correct. Strictly speaking, this argument does not establish epistemic relativism, since there might still be absolute epistemic facts, even if we cannot know what they are. As Boghossian acknowledges, however, there would be little interest in “an absolutism about epistemic truths which combined that absolutism with the affirmation that those truths are necessarily inaccessible to us” (Boghossian, 2004, p. 76).

This relativistic argument depends on the presence of a genuinely alternative system, and it is here that the relativist invokes historical cases such as the Galileo/Bellarmino dispute. As Boghossian sees it, Galileo uses an epistemic system that is constituted by a number of fundamental principles: (Observation), (Deduction), (Induction), and possibly (Inference to the Best Explanation). Let us give the explicit statement of (Observation) as an example:

(Observation) For any observational proposition *p*, if it visually seems to *S* that *p* and circumstantial conditions *D* obtain, then *S* is *prima facie* justified in believing *p*. (Boghossian, 2004, p. 64)

That these principles make up Galileo’s epistemic system means that he “relies upon them in forming beliefs, or in assessing the beliefs of others” (Boghossian, 2004, p. 64). These principles are “implicit” in his epistemic practice, he operates “according to” them (Boghossian, 2004, p. 65). That these principles are fundamental means that their “correctness cannot be derived from the correctness of other epistemic principles” (Boghossian, 2004, p. 67). Using these principles, and presumably relying heavily on Observation to justify his use of telescopic observations, Galileo concludes that the available evidence makes it rational to believe that the earth moves.

Bellarmino, on the other hand, uses an epistemic system with an additional fundamental principle:

(Revelation) For certain propositions *p*, including propositions about the heavens, believing *p* is *prima facie* justified if *p* is the revealed word of

God as claimed by the Bible. (Boghossian, 2004, p. 69)

Using this principle, Bellarmine concludes that it is rational to believe that the earth stands still.

Both Galileo and Bellarmine claim that their belief is justified by the available evidence, but neither can appeal to any further fact of the matter to justify that claim in a way that is acceptable to the other.<sup>9</sup> The relativist now concludes – along the lines presented above – that there is no independent way to establish whether (Revelation) is a legitimate fundamental principle, so that we must accept that Galileo and Bellarmine both hold “equally valid” beliefs.

This is how Boghossian construes the relativist’s argument. His reply consists in two separate objections, which we take up in turn. First, he questions the cogency of the argument moving from the presence of fundamentally different epistemic systems to Equal Validity (Section 2.2). In a second step, he questions not the inference to Equal Validity, but its crucial premise: the presence of fundamentally different epistemic systems (Section 2.3).

## **2.2 Defusing the argument: blind entitlement**

To block the inference from the presence of fundamentally alternative epistemic systems to Equal Validity, Boghossian invokes what he calls “blind entitlement”, the idea that “each thinker is entitled to use the epistemic system he finds himself with, without first having to supply an antecedent justification for the claim that it is the correct system” (Boghossian, 2004, p. 99). This raises the bar for an alternative system to instill “legitimate doubt” about our own epistemic system. Such doubt is only legitimate “if we were to encounter an actual, coherent, fundamental, genuine alternative ... whose track record was impressive enough to make us doubt the correctness of our own system” (Boghossian, 2004, p. 101). In the absence of an alternative system satisfying

---

<sup>9</sup>Given the overlap between their epistemic systems, this is not immediately clear. For now, we are just providing a sketch of the argument. More details follow below.



these more demanding criteria, we need not have any scruples about a circular justification of our own epistemic system. Thus, the conclusion is no longer that we cannot know what absolute epistemic facts (if any) there are, but only that we cannot know this while under the spell of such legitimate doubt. And there is no compelling reason, Boghossian points out, to infer from this more limited obstacle to our knowing the absolute epistemic facts that there are none to begin with (Boghossian, 2004, p. 103).<sup>10</sup>

Once this argument based on Boghossian's notion of blind entitlement is in place, it no longer matters what the precise nature of Bellarmine's epistemic system is: whether it instills legitimate doubt or not, the relativistic conclusion that there are no absolute epistemic facts never follows. The historical details become irrelevant. The same, moreover, goes for Boghossian's original presentation of the argument: when blind entitlement is not on the radar as imposing constraints on what doubt is legitimate, *any* imagined alternative system satisfying some minimal conditions of coherence is supposed to render us powerless to justify our own. Once again, we need not bother to closely examine the historical details. Given the way Boghossian sets up the relativistic argument, then, its force has little or nothing to do with the nature of the cases studied by those scholars in the humanities who, according to Boghossian, accept Equal Validity. This raises the worry alluded to in the Introduction: Boghossian's colleagues in the humanities take themselves to become convinced of something like Equal Validity *through* their intimate familiarity with the complexities of cases like the Galileo-Bellarmino dispute, whereas Boghossian's construal of the debate leaves no substantive role for such cases to play. Even if their conclusions are misguided in the way Boghossian believes, they are unlikely to be impressed by his arguments, if they feel that it is precisely attention

---

<sup>10</sup>It is questionable whether the absolutist can be as happy to accept this weaker conclusion as Boghossian seems to suggest. Boghossian does not clarify if or how, once legitimate doubt about our epistemic system has arisen, we would be able to remove that doubt. If we cannot – if legitimate doubt constitutes an epistemic black hole from which we cannot free ourselves – then the abstract possibility of our knowing what the absolute epistemic facts are antecedent to such doubt would offer little consolation. Boghossian himself admits, in a later paper, that such legitimate doubt would probably leave us in a “crippling *skepticism*” (Boghossian, 2008b, p. 428); and in an earlier paper he still took it to be plausible that absolute epistemic facts are *known*, not merely that they can be known (Boghossian, 2001, p. 4).

to the empirical details of such cases that makes one sensitive to the truth in epistemic relativism to begin with. They may certainly be blind to some of the conceptual complications of their position, but Boghossian may well be blind to how his own approach is inadequate to do justice to the complexities of historical cases such as the Galileo/Bellarmino dispute.

We can sharpen this suspicion. Boghossian confidently states that “perhaps it is overdetermined that the relativist will agree” with the idea of blind entitlement (Boghossian, 2004, p. 99). No doubt, all relativists will agree that everybody is *prima facie* entitled to use the epistemic system they find themselves with. But Boghossian requires more, as he goes on to assume that this entitlement puts one in a position to justify the *absolute* correctness of one’s epistemic system, and this the relativist will deny.<sup>11</sup> In assuming this, Boghossian is begging the question against the relativists. As we will show in what follows, relativists can resist this move in a principled way by appealing to the results of a more fine-grained analysis of the historical details of the Galileo/Bellarmino dispute (see Section 4.3). Rather than blind entitlement ruling out the relevance of historical evidence, it is the historical evidence that is taken to prompt a different understanding of the nature and scope of this entitlement.

### **2.3 Doubting the premise: fundamental difference?**

In the second step of his reply, Boghossian does not offer a blanket denial of the possibility of fundamentally alternative epistemic systems, but argues that Bellarmine’s system does not qualify. Still, his analysis yields the general conclusion “that it is much harder than one may be inclined to assume at first blush to come up with an epistemic system that is a genuine fundamental alternative to the ordinary one” (Boghossian, 2004, p. 103). The question is this: can we coherently ascribe to Bellarmine an epistemic system that has (Revelation) as one of its fundamental principles, rather than as a merely

---

<sup>11</sup>See already (Kusch, 2009).

derived principle? Boghossian argues that we cannot, so that Bellarmine is simply “someone using the very same epistemic norms we use to arrive at a surprising *theory* about the world” (Boghossian, 2004, p. 104). Whatever the merits of that surprising theory, we would no longer be dealing with a fundamentally different epistemic system, so that the relativist’s argument cannot get off the ground.

Boghossian’s original argument for this conclusion is opaque, so we will be relying on the important clarification in his reply to John MacFarlane’s objections (Boghossian, 2008b; MacFarlane, 2008). Suppose that (Revelation) has the status of a fundamental principle. Given that (Observation) and (Revelation) yield conflicting verdicts in some cases, Bellarmine needs what Boghossian calls an “adjudicating principle” to decide between such conflicting verdicts, in the same way that we need principles to adjudicate, for instance, between (Observation) and (Induction) when they yield conflicting verdicts. The adjudicating principle that Boghossian ascribes to Bellarmine runs as follows:

(Bellarmine’s Adjudicating Principle) Observation trumps Revelation for ordinary life, but ... Revelation trumps Observation when it comes to the make-up of the sky. (Boghossian, 2008b, pp. 425-426)

The problem, as Boghossian sees it, is that this principle does not sit well with what he calls the “no arbitrary distinctions principle”, the relevant part of which reads as follows:

If an epistemic system (or its user) proposes to treat two propositions p and q according to different epistemic principles, it must recognize some epistemically relevant difference between p and q. (Boghossian, 2004, p. 98)

According to Boghossian, Bellarmine’s adjudicating principle “would only make sense if he believed that propositions about the heavens are different in kind from propositions about earthly matters, so that vision might be thought to be an inappropriate

means for fixing beliefs about them” (Boghossian, 2004, p. 104). He continues: “But doesn’t [Bellarmine] use his eyes to note that the sun is shining, or that the moon is half full, or that the clear night-time Roman sky is littered with stars? And doesn’t he think that the heavens are in a physical space that is above us, only some distance away?” (Boghossian, 2004, p. 104). As Boghossian sees it, the situation seems to be the following. Before Galileo’s observations, there was no conflict between (Observation) and (Revelation) with regards to propositions about the heavens, so that Bellarmine did not need his adjudicating principle to justify his use of the Bible to justify geocentrism. After those observations, however, there is a conflict. At this point, Bellarmine decides that the Bible trumps observation with regards to the make-up of the heavens. But this, Boghossian charges, is *ad hoc*. Bellarmine does not let (Revelation) trump (Observation) with regards to earthly matters, so what reasons are there to suddenly do so with regards to the heavens, except a dogmatic adherence to what he regards as an article of faith? On pains of being epistemically irrational, one cannot simply immunize the Bible *à la carte* against contradictory evidence whenever such evidence happens to arise. Thus, if Bellarmine was indeed using (Revelation) as a fundamental principle with the above adjudication principle, his epistemic system was irrational, so that it cannot be used to argue for relativism. The only alternative is to suppose that it is not a fundamental principle after all, but merely derived, which again undermines the relativist’s argument.

What the relativist would have to show, then, is that Bellarmine had more principled grounds for his adjudication principle. It is here, we claim, that more careful attention to the historical epistemic situation of Galileo and Bellarmine makes all the difference. The historical evidence reveals many complexities that Boghossian does not take into account, and which may reasonably be taken to point toward a different conclusion. Let us, then, look at this historical episode in more detail.

### 3 The historical evidence

#### 3.1 Some plain facts

Let us first rehearse some plain facts. In March 1616, the Congregation of the Index suspended Copernicus' *On the Revolutions of Spheres* "until corrected" (Finocchiaro, 1989, pp. 148-149). A week before, the Roman Inquisition had concluded that the statement that "the sun is the center of the world and completely devoid of local motion" was "foolish and absurd in philosophy, and formally heretical" (Finocchiaro, 1989, p. 146). These decisions were the outcome of a prolonged and often public debate between Galileo and some of his opponents that started soon after the publication of the former's *Siderius Nuncius* in 1610, announcing his first telescopic discoveries.

While this historical episode involves many relevant actors, most analyses have focused on the opposition between Galileo and cardinal Bellarmine. The latter was not only the most influential cardinal within the Congregation of the Index and the Roman Inquisition, but also the most important theologian in counter-reformation Rome, canonized and named "Doctor of the Church" in the early twentieth century. The central textual documents are two letters that Galileo wrote to defend the compatibility of Copernicanism with the Bible, the "Letter to Castelli" (1613) and the "Letter to the Grand Duchess Christina" (1615), and one letter from Bellarmine from 1615, reacting in part to Galileo's Copernican campaign, and which needs to be read against the background of his earlier theological writings.<sup>12</sup>

#### 3.2 The epistemic status of astronomy

To correctly gauge what was at stake in the debate we first need to understand the epistemic status of mathematical astronomy in the period ranging from Copernicus' pub-

---

<sup>12</sup>Finocchiaro's "documentary history" (Finocchiaro, 1989) presents English translations of the most important documents. (Fantoli, 2003) provides a rich and up-to-date interpretation of the unfolding of the historical case. (Blackwell, 1992) gives much background on Bellarmine and offers translations of further relevant documents.

lication of his treatise in 1543 to its suspension in 1616.<sup>13</sup> Astronomers and philosophers had been debating the possibility of attaining knowledge of the true structure of the cosmos by astronomical means since Antiquity, as it was well known that incompatible mathematical models could account for the same observations. As a consequence, a majority of sixteenth century astronomers took a sceptical position, which has been characterized as one of “perpetually frustrated realists” (Barker & Goldstein, 1998, p. 253). They saw their discipline as aiming for the knowledge of true causes, but they also believed that due to their limited earthly perspective they necessarily lacked the information that would allow them to pick out the right model amongst the different possible ones. This scepticism was frequently coupled with an insistence on the fact that absent any human means to directly observe the structure of the heavens, only God could provide the missing information.<sup>14</sup>

Copernicus and his (relatively few) followers stood out against this background for their insistence that they could demonstrate the truth of their preferred model. This confidence initially rested solely on the surplus mathematical virtues that they claimed for the heliocentric model, since there was no observational evidence available to break the tie between the Copernican and a Ptolemaic model. This seemed to change with Galileo’s telescopic observations. Most importantly, it became clear in 1610 that Venus showed a full cycle of phases, as our moon does, indicating a path around the sun for that planet.<sup>15</sup>

---

<sup>13</sup>Historiographical views on this topic have a long history themselves, going back at least to the seminal work of Pierre Duhem. We will base our summary on (Jardine, 1984, chapter 7) and (Barker & Goldstein, 1998), which provide necessary corrections to many simplistic presentations.

<sup>14</sup>The underdetermination problem sketched in this paragraph was not the only factor in determining attitudes towards the epistemic status of astronomy. Related worries arose because all successful mathematical models seemed to violate at least some aspects of Aristotelian physics, and had to deal with some recalcitrant observations. These two latter factors were also often invoked in justifying a skeptical attitude towards mathematical astronomy. As the underdetermination problem is most crucial for our analysis of the epistemic symmetry characterizing the Galileo/Bellarmino debate, we will not treat these other factors explicitly in our text.

<sup>15</sup>As usefully pointed out in (Ariew, 1987), this does not rule out all possible Ptolemaic models, as one can construct models in which the parameters are such that Venus, while moving on a sphere that revolves around the earth, as a matter of fact also cycles around the sun. This option does not appear to have been taken seriously by any astronomer at the time.

This did not settle matters, though. In the meantime, the model proposed by Tycho Brahe in the late sixteenth century had been gaining many followers. In this model the sun and moon circle the earth, whereas all planets revolve around the sun (see (Lattis, 1994, chapter 2, and pp. 205-211)). It incorporated the surplus mathematical virtues of the Copernican model, predicted the Galilean observations of Venus, and retained a stationary earth, as demanded by Aristotelian physics.

In sum, astronomers and philosophers were well aware of the underdetermination of astronomical theories by observational evidence, an underdetermination which remained after Galileo's telescopic observations. It was clear to everybody involved that additional, non-observational, grounds were needed if one wanted to establish the superiority of one model over its rivals. Such superiority could be motivated by general physical theories (such as the claim from Aristotelian physics that the earth was necessarily stationary at the centre of the cosmos), by invoking theoretical virtues (as the Copernicans did), or on theological grounds.<sup>16</sup> As we will see, Galileo developed a fourth option: extrapolating from the early successes afforded by his telescope, he was confident that his novel astronomical techniques would generate further evidence that would allow astronomers to overcome the remaining underdetermination, thus implicitly introducing empirical progress as a criterion for something like truth-approximation.

### **3.3 The theological worry, and two strategies to deal with it**

Even before the formal publication of Copernicus' theory, worries had already been raised about its compatibility with biblical passages that speak about the motion of the sun.<sup>17</sup> As a result, Copernicus' published treatise was prefaced with an anonymous letter which urged the reader not to interpret the proposed model as a realist description

---

<sup>16</sup>Strictly speaking, there was a fourth source of information that was frequently appealed to: everyday observation. This was often intimately tied to the first (Aristotelian physics), as Aristotelian epistemology gives a privileged place to this kind of observation in grounding a physical theory. For that reason, we will not treat it separately. Some astronomers appealed to a combination of these different sources, sometimes including all three mentioned, as was the case with Tycho Brahe (cf. e.g. (Howell, 2002, chapter 3)).

<sup>17</sup>See (Lerner, 2005) for some early reactions to Copernicus' ideas.

of the cosmos. Following the skeptical tradition outlined above, it was claimed that mathematical astronomy was not in the position to offer such descriptions, and that the treatise should be seen as providing nothing but a new method for calculating planetary positions. In this way, the seeming contradiction between Copernicanism and the Bible was neutralized. This letter was added without Copernicus' knowledge, and clearly goes against the spirit of the treatise itself, but likely played a large part in delaying the vigorous public debate that was to arise more than half a century later as a result of Galileo's campaign .

Since Galileo claimed that Copernicanism provides a true model of the cosmos, he had to find a different way to deal with the relevant Bible passages. He did so by appealing to an already established aspect of the Christian theological tradition, namely the acknowledgment that the Bible requires interpretation. It was universally agreed that not all biblical passages should be read literally. The real problem, then, was how to determine which passages should be given a literal reading, and which ones ought to be interpreted non-literally. If it could be argued that the passages on the motion of the sun possibly belonged in the latter category, Copernicans would be free to uphold their theory without contradicting biblical evidence.

Broadly speaking, then, two strategies were available for anyone worrying about the tension between Copernicanism and the Bible. Either one could embrace a realist interpretation of the astronomical theory, and accordingly argue for a non-literal interpretation of the relevant passages in the Bible. Or if one had a reason to prefer the literal reading of these passages, one could appeal to the skeptical tradition and treat the Copernican model as nothing more than a convenient instrument for calculation. These are the two roads chosen by Galileo and Bellarmine respectively. In this way, both the astronomer and the theologian tried to exploit some established aspects of each other's disciplines (respectively the possibility of non-literal readings and of non-realist interpretations) to justify their position.



### 3.4 Galileo and the principle of prudence

Let us examine Galileo's strategy in more detail. We focus on Galileo's "Letter to Christina", which contains his most considered arguments on the matter.<sup>18</sup> Galileo shares two premises with his opponents: that the Bible contains the revealed word of God, and as such is a legitimate source of evidence; and that the truths revealed in the Bible cannot be inconsistent with the truths uncovered through human experience and reason. This implies that in case of an apparent inconsistency between the Bible and natural philosophy, it has to be decided whether the relevant passages have been misinterpreted, or whether the philosophical claim has not been properly demonstrated.

In the letter, Galileo (correctly) does not presume that he has a proper demonstration for the truth of heliocentrism. But he firmly believed that such a demonstration was possible, so that anyone advocating a literal reading of the relevant Bible passages would be acting prematurely. He does not argue that the passages have been misinterpreted, but rather that he and his contemporaries were not yet in a position to know the proper interpretation. To this end he introduces what has been called a "principle of prudence" (McMullin, 1998, p. 292), which states that in case of statements the truth of which could possibly be demonstrated by appeal to experience and reason, we should not yet decide on Bible interpretations that possibly contravene that truth.<sup>19</sup>

This leaves open two important questions. What are the statements that could possibly be so demonstrated? And what are we to do with statements that do not fall in this category?

On the second question, Galileo was clear enough. If the Bible contains relevant information, we should adhere to the theologically established reading. This was evidently the case for all matters of faith and morals, but also for some natural phenomena.

---

<sup>18</sup>To a certain extent, interpretations of this complex letter will always be controversial. Compare e.g. (McMullin, 1998) with (Finocchiaro, 1986) and (Fantoli, 2003, pp. 146-168). Our reading is similar to the one defended by Finocchiaro and Fantoli.

<sup>19</sup>"I should think it would be very prudent not to allow anyone to commit and in a way oblige Scriptural passages to have to maintain the truth of any physical conclusions whose contrary could ever be proved to us by the senses and demonstrative and necessary reasons." (Finocchiaro, 1989, p. 96)

His example was “whether the stars are animate” (Finocchiaro, 1989, p. 104). As God has not given us the resources to decide on the truth of this statement without further assistance, we should defer to the double gift of the Holy Writ and the inspired tradition of its interpretation. The appeal to this divine gift was crucial for Galileo, because it allowed him to stress that since God has also given us the capacities of observation and reason, we should use and trust them equally wherever they apply. This also implies that if the truth of some claim can possibly be decided using these faculties, this should guide us in interpreting the Bible.<sup>20</sup> In this way, Galileo could appeal to the traditional metaphor of God’s two books. God has not only given us two books, but also the appropriate faculties to read these books (respectively inspiration, and reason and observation). He has moreover guaranteed harmony between both – provided we correctly adjudicate between them.<sup>21</sup>

This appeal to God’s gifts also brings us as close to an answer to the first question as we can get. We are told that we “may firmly believe” that the truth (or falsity) of heliocentrism can be demonstrated by observation and reason (Finocchiaro, 1989, p. 104). Galileo asserts that his observations “can never be reconciled with the Ptolemaic system in any way, but are very strong arguments for the Copernican” (Finocchiaro, 1989, p. 103). He declines, however, to address the remaining underdetermination due to the

---

<sup>20</sup>“...in questions about natural phenomena which do not involve articles of faith one must first consider whether they are demonstrated with certainty or known by sensory experience, or whether it is possible to have such knowledge and demonstration. When one is in possession of this, since it too is a gift from God, one must apply it to the investigation of the Holy Writ at those places which seem to read differently.” (Finocchiaro, 1989, p. 105) The limitation to “natural phenomena which do not involve articles of faith” was meant to exclude miracles, i.e. cases where the inspired interpretation of the Bible should be given evidential precedence.

<sup>21</sup>Some interpreters have taken Galileo’s inclusion of statements about natural phenomena in the category of statements about which Bible interpretation should be given evidential privilege to constitute an inconsistency on his part, as he seemed to deny all epistemic relevance of the Bible for statements about natural phenomena at other places (see e.g. (McMullin, 1998, pp. 314-319)). We believe that there are good reasons internal to Galileo’s text to see these apparently conflicting statements as imperfect expressions of the underlying, more fundamental principle about God’s two distinct gifts to mankind. The latter translates into a distinction that is not completely co-extensive with the one between matters of faith and morals on the one hand, and matters of nature on the other hand (see also the exclusion of miracles in footnote 20). The nature of the gifts implies that within matters of nature a further distinction has to be made between those about which we were given the means to find out the truth on our own, and the ones about which we lack such means – and where we are invited to lean on the Bible if it provides relevant information. (See (Fantoli, 2003) for more detail on this line of argument.)

Tychonic alternative, merely stating that “because of many new observations ... one is discovering daily that Copernicus’s position is truer and truer” (Finocchiaro, 1989, p. 103). In sum, the reader is simply asked to trust that the process of discovery will go on until a unique astronomical hypothesis is definitively established. Independent evidence that astronomical methods will allow us to reach such final demonstrations is not on offer. The biblical and patristic passages that Galileo used to support the idea that God wants us to use our ingenuity to discover new things about the natural world are not specific enough. Appealing to the power of astronomical methods themselves, on the other hand, would be obviously circular – since it was exactly the reach of these methods that was in question. Galileo was, in fact, implicitly introducing a novel notion of demonstration, by treating progress in a research program as evidence for something like truth-approximation, an idea that went far beyond what it meant to demonstrate according to “observation and reason” as this was traditionally understood.

### **3.5 Bellarmine and the principle of consensus**

Bellarmino’s reply was short but to the point. He immediately warned Galileo and his defenders that treating heliocentrism as a possibly true description of the cosmos was “damaging to the Holy Faith by making the Holy Scripture false” (Blackwell, 1992, p. 265). In his view, it was already clear that the literal reading of the passages in question should be preferred, on the grounds of what can be called a “principle of consensus”, which had been explicitly codified at the Council of Trent (held between 1545 and 1563). According to this principle the preferred interpretation of the Holy Fathers should always be followed if there was consensus amongst them, as they spoke under holy inspiration. As Galileo was well aware, the wording of the relevant decree had seemingly limited the scope of the principle to “matters of faith”, but according to Bellarmine this implied no real limitation: anything that is said in the Bible should be considered a matter of faith “*ex parte dicentis*” (because of the speaker). If something

was the word of the Holy Spirit as spoken “through the mouths of the Prophets and the Apostles” it automatically became a matter of faith: there was no way in which we could question their authority (Blackwell, 1992, p. 266).

Having thus addressed the main issue, Bellarmine conceded that something like the principle of prudence was a valid principle. Occasions can arise in which we have to adapt our reading of Scripture to observational evidence. But he also made clear that there was no reason to assume it was applicable in the debate at hand. The scope of observation is limited to things that can be directly experienced (among which, to be clear, Bellarmine included the motion of the stars and sun), whereas the Copernican hypothesis could never be directly observed, due to underdetermination. Galileo’s telescopic observations were perfectly legitimate astronomical data as far as they go, but could not be used to put the inspired consensus about geocentrism in doubt. It was rather the other way around: the inspired reading of the Bible taught that heliocentrism was false, thus confirming the impossibility of using Galileo’s implicit notion of progress as a criterion of truth.

### **3.6 Daring extrapolations and innovations**

After having seen Bellarmine’s letter (which had not been explicitly addressed to Galileo, but was clearly intended for his eyes), Galileo wrote down some further notes on the matter. In one of these he accuses his opponents of committing “the error called ‘begging the question’” (Blackwell, 1992, p. 274). As he saw the situation, Bellarmine cannot use biblical passages to call into doubt the possibility of astronomical demonstrations, when the “true sense of the Scripture will already have been put in doubt by the force of the [astronomical] argument” (Blackwell, 1992, p. 274). It is easy to see, however, that Bellarmine could have leveled exactly the same accusation at Galileo: he was begging the question if he wanted to argue that these astronomical arguments could put in doubt the “true sense of the Scripture”, when their purported conclusions had already been

put in doubt by the force of theological argument concerning the true sense of Scripture.

Both Galileo and Bellarmine accepted that reading the Bible and empirical observation are *bona fide* sources of evidence. Both agreed that further guidelines were needed to decide what to believe on their basis. Neither the book of revelation nor the book of nature can be read without proper assistance – assistance which should also provide the means to adjudicate in cases where the readings seem to lead to contradictory conclusions. Galileo and Bellarmine also shared a tradition that provided a number of ways to deal with such cases. Crucially, however, this tradition provided no clear-cut treatment of the fundamentally new epistemic situation created by Galileo’s telescopic discoveries. Both Galileo and Bellarmine were extrapolating from past epistemic decisions to come up with their respective answers about what were the right epistemic principles to use in this new situation. And they did so by claiming that their approach formed a natural continuation of what everybody had been doing (or at least should have been doing) all along: Galileo explicitly appealed to the authority of Augustine, one of the undisputed fathers of the Church, to justify his use of the principle of prudence, whereas Bellarmine drew on the instrumentalist tradition in astronomy. In other words, it was only by offering an interpretation of their shared tradition that the right “adjudicating principles” could be established and that the tradition could be continued in a coherent way, given the epistemic situation at hand.

It is important to stress that the diverging extrapolations by Galileo and Bellarmine were equally daring but that neither was unreasonable. Galileo’s claim that his research program of making further mathematically analyzable discoveries with his new instrument would progress until one could identify the one true hypothesis was exhilarating but totally unprecedented. Still, this claim could be partly backed up by Galileo’s observations of Venus’ phases; and Bellarmine, who reasonably deferred judgement on this matter to the expert astronomers of the Collegio Romano, in no way disputed the observations themselves or their direct interpretation (i.e., that they were due to pat-

terns of partial illumination, and that this ruled out some mathematical models). On the other hand, Bellarmine's extension of the principle of consensus to everything that was stated in the Bible was in line with important tendencies within the church, but surely not explicitly codified as such in the Council of Trent. Still, this extension was less of a stretch than might appear, given that the relevant decrees of the council of Trent did not specify any criterion by which to determine what counts as "matters of faith and morals". Since Galileo never doubted the divine authorship of the Bible, he would have to show how to distinguish matters of faith from statements not having that status within the Bible without claiming any direct insights in God's intentions, and it is hard to see how he could have done so without simply begging the question in favor of his realist interpretation of the Copernican model.

There is a deep symmetry here: to Galileo, Bellarmine seems to select *ad hoc* principles with which to safeguard his theological convictions against astronomical evidence. To Bellarmine, however, Galileo appears to select *ad hoc* principles with which to safeguard his astronomical convictions against theological evidence. What can make it hard for us (or, at least, many of us) to appreciate this symmetry, is that we are predisposed to disregard the very idea of there being such a thing as theological evidence against astronomical claims, precisely because we reject the Bible as a source of evidence, especially with regards to such empirical matters. What we have aimed to show, is that Bellarmine presents us with a principled epistemic stance – foreign as it may be to us – which incorporates Galileo's observations in a coherent way such that they do not defeat the justification of geocentrism on the basis of Biblical evidence.

## 4 Reconstructing the relativist argument

### 4.1 The central role of adjudicating principles

The threat of circularity is evident in the stand-off between Galileo and Bellarmine. But it is important to notice the precise point at which it arises.

To start, Boghossian's formulation of (Revelation) must be corrected. Recall the formulation:

(Revelation) For certain propositions  $p$ , ... , believing  $p$  is prima facie justified if  $p$  is the revealed word of God as claimed by the Bible. (Boghossian, 2004, p. 69)

This misses the special status of the Bible: both Galileo and Bellarmine accept that the Bible contains no falsehoods. If  $p$  is indeed the revealed word of God as claimed by the Bible, then  $p$  is true and must be believed, full stop. Instead, the interesting epistemic question is: what does the Bible say? And it is here that an epistemic principle comes in, which we could call (Inspiration):

(Inspiration) For propositions  $p$ , if  $p$  is entailed by an inspired reading of the Bible, then believing  $p$  is prima facie justified.

What is fallible, is not the Bible, but our interpretation of it. The importance of this point can be illustrated by noticing how Boghossian's formulation invites analyses such as the one given by Markus Seidel, who states that we can understand Bellarmine's reliance on Biblical evidence as an instance of a more general principle of the testimonial reliability of books (Seidel, 2014, p. 177). In this way, Seidel compares Bellarmine's reliance on the Bible to our reliance on physics books. As long as (Revelation) is taken to be the operative principle, this does seem a natural interpretation of what Bellarmine is doing, and it straightforwardly renders his adherence to the Bible irrationally dogmatic. But it is mistaken. We have no problem acknowledging that physics books can make false

statements. Not so for Bellarmine (or for that matter, Galileo) and the Bible: if it seems as if the Bible says something false, this must be because we have misunderstood it. The fault lies in us, not in the book. The proper analogy is not between the Bible and physics books, but between the Bible and the Book of Nature: if anything happens in nature it is *ipso facto* true. And just as (Inspiration) is an epistemic principle on how to draw on the Bible as a source of truth, so (Observation) is a principle for how to draw on Nature as a source of truth. (Inspiration) is not a testimonial principle, but more like what Boghossian calls a “generation principle” (Boghossian, 2004, p. 65) – a principle that generates justification for beliefs from something that is not itself a belief, in this case not a perceptual state as with (Observation) but a state of inspiration.

With this correction in place, we can see that Galileo and Bellarmine agree on fundamental epistemic principles like (Observation) and (Inspiration), but that they disagree about the proper way of adjudicating between them. It is not the validity of the epistemic principles themselves that is at issue, but the question how to apply them in the fundamentally new circumstances created by Galileo’s telescopic observations in the aftermath of the Council of Trent. This question is answered by appealing to the following adjudication principles:

(Prudence) With regards to matters of possible demonstration, (Observation) combined with (Deduction) and (Induction) should take precedence over (Inspiration).

(Consensus) With regards to matters of faith, (Inspiration) should take precedence over (Observation) combined with (Deduction) and (Induction).

Galileo and Bellarmine can even agree to a large extent on the validity of both proposed principles, if formulated abstractly – but they disagree on which principle is applicable in the present case: are we concerned with a “matter of faith”, so that the principle of consensus applies, or with a matter for “possible astronomical demonstration”, so that the principle of prudence must be followed? The principles themselves do not give



the answer: this can only be found in a contestable judgment with respect to what can be “possibly demonstrated”, or what is a “matter of faith”. It is this judgment about the relative scopes of the adjudicating principles that cannot be further defended in a non-circular way.

Once the role of adjudicating principles is highlighted – as Boghossian admits it must be if we are to attain an adequate account of our epistemic practice (Boghossian, 2008b) – this puts considerable pressure on Boghossian’s absolutism according to which we can know the absolutely correct epistemic system that fixes which items of information justify which propositions. Boghossian seems to be caught in a dilemma. Either he accepts that his absolutism is limited to fundamental principles, excluding matters of adjudication, but then it becomes completely impotent with regards to our actual epistemic practices. Or he claims that there are absolute facts about how to adjudicate as well, so that it is objectively settled how to adjudicate between our fundamental principles in *any* epistemic situation. It is precisely this second claim that the Galileo/-Bellarmine case shows to be problematic: it shows how situations can always arise in which we have to decide on new ways to adjudicate between our fundamental epistemic principles, and in which there are different procedures of adjudication available none of which can be justified in a non-circular way. The relativistic conclusion to draw is that we have here a genuine case of Equal Validity, in the form of two equally valid procedures of adjudication which give rise to fundamentally different epistemic systems and which cannot be justified in a non-circular way.

Boghossian, if he wishes to hold on to his absolutism, would have to maintain that it is nevertheless somehow always objectively settled which procedure of adjudication is the correct one and that, in principle, we are always in a position know what this correct procedure is.<sup>22</sup> In this vein, while admitting that matters of adjudication are “complex and variegated” (Boghossian, 2008b, p. 421), he stresses that they must nevertheless be

---

<sup>22</sup>Recall that Boghossian is – rightly – not interested in an absolutism according to which we cannot know what the correct epistemic principles are.

decidable *a priori*. Boghossian presents the following argument: “If we can only think of ourselves as having epistemic principles that deliver determinate verdicts if they are *a posteriori*, then it is hard to see how we could *ever* figure out what the correct adjudicating principles are. To figure them out from the evidence, it would seem you would antecedently have to know what they are” (Boghossian, 2008b, p. 419). Read as an argument against the relativist claim that the correct adjudication principles cannot be determined *a priori*, this seems to beg the question. After all, the relativist means to deny that we can figure out what the correct adjudicating principles are, if “correct” is read as “absolutely correct”, since according to them there are no absolutely correct adjudicating principles. Similarly, if Boghossian is claiming that any *a posteriori* grounds for a procedure of adjudication will be circular because they invoke that very procedure, this can be seen as a version of exactly the point the relativist wishes to make: both Galileo and Bellarmine can indeed only justify their adjudication principles in circular ways. At the same time, it must be emphasized that the relevant relativistic picture is not that of someone pulling up a whole epistemic system by their bootstraps, adjudication and all. What is crucial in historical cases such as the Galileo/Bellarmino dispute is that an existing epistemic system is confronted with a fundamentally new situation. Galileo and Bellarmine, as we have emphasized, already have an epistemic system, including adjudicating principles, on which they more or less agree. What needs to be settled, is not how to adjudicate between (Observation) (in combination with principles of reasoning) and (Inspiration) in general, but how to adjudicate between them specifically in the face of Galileo’s new kind of empirical observations. As we have seen, Galileo and Bellarmine can rely on shared reasons – including the underdetermination problems in astronomy and disputes about the domain of matters of faith in theology – in order to decide that question. What impresses the relativist in a careful study of cases like these, is a combination of the fact that this new kind of epistemic situation could not have been foreseen, and the fact that the existing epistemic system at the time yields no unequivocal

cal answer. As we have tried to show, both Galileo and Bellarmine presented coherent ways to extend their epistemic system, with contradictory results. From this, the relativist concludes that it makes no sense to conceive of such matters as objectively settled in advance. If we believe it to be obvious that, yes indeed, the make-up of the heavens is a matter for possible demonstration and not a matter of faith, we are simply projecting back into what is an inherently indeterminate epistemic situation the centuries of further development since Galileo's views came to be accepted.<sup>23</sup> Such development does not show that Galileo's answer was objectively correct and Bellarmine's objectively incorrect, it only shows that we have succeeded in fruitfully building upon the epistemic basis that Galileo laid out for us.<sup>24</sup>

## 4.2 Fundamental difference

To correctly gauge the force of these considerations, it is important to stress that we can see Bellarmine as proposing a fundamentally different epistemic system, thus effectively countering Boghossian's argument (see Section 2.3). There are two main reasons to doubt this. The first questions whether a mere difference in adjudication can lead to

---

<sup>23</sup>Note that this amounts to precisely the sort of *a posteriori* consideration that Boghossian needs to be irrelevant. Boghossian is committed to the claim that Bellarmine himself – given all the information he had – was in a position to rationally decide on the correct adjudication principles through suitable *a priori* reflection. What is *a posteriori*, is whether those correct adjudication principles render either geocentrism or heliocentrism the correct position to adopt, since this requires empirical evidence. If one admits, however, that reflection about the correct adjudication principles must *itself* rely on the further astronomical evidence that was gathered post-Galileo, one is thereby admitting that adjudication is not an *a priori* matter. Moreover, the invocation of such further evidence remains circular from Bellarmine's point of view, since it relies on Galileo's procedure of adjudication, according to which such astronomical evidence is relevant to the make-up of the heavens to begin with. Similarly, if Bellarmine's procedure had been adopted, it is possible that further theological evidence against heliocentrism would have arisen, the invocation of which would remain question-begging from Galileo's point of view.

<sup>24</sup>In this regard, we should remain aware of the fact that Copernicanism itself seems to fly in the face of observational data. Does not Galileo, as stressed by Bellarmine (Blackwell, 1992, p. 266), use his eyes to see that the sun is moving? Does he then believe that propositions about the movement of the sun are different in kind than those about earthly observational matters? Is this not an arbitrary distinction? And so on. Of course, it is to answer these worries that Galileo developed his innovative analyses of the application of the concept of motion to observational deliverances in the *Dialogue concerning the two chief world systems* in 1632. Finding out new fruitful ways to adjudicate is indeed at the core of much scientific work. Boghossian, on the other hand, states that "the way of fixing beliefs that we call 'science' is in large part a rigorous application of these ordinary, familiar principles", referring to the principles of (Observation), (Deduction) and (Induction) (Boghossian, 2004, p. 67). This completely ignores the question of how to adjudicate between those principles, as if it is always a straightforward matter *how* to apply them "rigorously".

fundamentally different systems; the second directly targets the possible role of (Inspiration) as a fundamental principle.

According to Boghossian, adjudicating principles “tell us when a piece of evidence for *p* is stronger than another piece of evidence that we might have for rejecting *p*” (Boghossian, 2008b, p. 419). This leads to a picture of Bellarmine claiming that the Biblical evidence for geocentrism trumps the astronomical evidence against it.<sup>25</sup> On such a picture, it can only be a matter of time before the mounting astronomical evidence will tip the balance in favor of Galileo, even if Bellarmine was perhaps still rational to hold on to geocentrism. There is no fundamental difference between their epistemic stances, and thus no good reason to deny the existence of absolute epistemic facts, even if Galileo and Bellarmine were perhaps not yet in a position to rationally decide between geocentrism and heliocentrism – not because they were not in a position to know what the relevant absolute epistemic facts are, but because they lacked sufficient evidence to decide which of the two was better justified in accordance with those absolute epistemic facts.

Our historical study is meant to reveal a different picture. As we have seen, Bellarmine does not use underdetermination and (Consensus) to weigh the Biblical evidence for geocentrism against the observational evidence against it. Rather, he invokes underdetermination to deny that Galileo’s telescopic observations provide grounds for Copernicanism at all. Similarly, Galileo invokes his novel notion of demonstration and (Prudence), not to argue that the Biblical evidence is insufficient to support geocentrism, but rather to argue that the Bible does not provide independent evidence for geocentrism at all. Their way to disarm opposing evidence is not to claim that it is too weak, but rather to deny its relevance for the issue at hand. The issue of adjudication arises at the level of determining what kind of information can be evidence for what kind of claim,

---

<sup>25</sup>See e.g. (Baghramian & Coliva, 2019, p. 183), who use this to argue that the difference between Galileo and Bellarmine is one in terms of derived rather than fundamental epistemic principles, and thus does not lead to relativistic conclusions.

and not merely in weighing contrary evidence.<sup>26</sup>

Once this is seen, it becomes hard to deny that different procedures of adjudication can, in cases such as these, give rise to fundamentally different systems. Even though Galileo and Bellarmine share their fundamental principles, and even their adjudication principles in general outline, there is a deep mismatch between them concerning what is to be counted as evidence for what, and thereby also concerning how to even approach the task of justifying certain claims. One will read the Holy Fathers' commentaries on the Bible, the other will look through a telescope. Such difference cannot be brushed aside as merely 'derivative' or 'superficial', as is further brought out precisely by the way in which it is hopeless to try to justify either procedure in a non-circular way.

This connects with the question whether (Inspiration) is a fundamental principle or not in Bellarmine's epistemic system. Boghossian characterizes as fundamental those principles "whose correctness cannot be derived from the correctness of other epistemic principles" (Boghossian, 2004, p. 67). Both Boghossian and Seidel wish to suggest that (Revelation) is not fundamental in this sense, because it is a derived principle that is justified by other epistemic principles (and one can presume they would analyse (Inspiration) in similar terms).<sup>27</sup> Again, however, this slides over the issue of adjudication. The question is not whether an epistemic principle, abstractly formulated, *could* be derived from other principles, but whether it *is* so derived. It is a matter of how the principle is used in justifying beliefs.<sup>28</sup> Is it a principle that is taken to be only conditionally valid, on the basis of certain evidence and the use of other principles? Or is it a principle whose validity is not up for question, and which independently grounds the justification of beliefs and other principles? As our previous argument shows, this depends on the

---

<sup>26</sup>In this way, our analysis of the historical debate allows us to flesh out Stephen D. Hales' suggestion that the kind of "genuine irreconcilable difference" that can motivate relativism arises when actors disagree over what evidence is relevant to the truth of a certain proposition to begin with, in a situation where "they cannot discover any mutually agreeable meta-evidence which would allow them to settle their dispute over first-order evidence" (Hales, 2014, p. 80). What Hales calls "meta-evidence" corresponds to evidence ("reasons" is perhaps a better term here) for the procedures of adjudication.

<sup>27</sup>Compare Seidel's suggestion, discussed above, that the epistemic role of the Bible in Bellarmine's system can be accounted for in terms of the testimonial reliability of books.

<sup>28</sup>See (Kusch, 2017) for related considerations, yet without highlighting the role of adjudication.

procedures of adjudication. If it is merely a matter of weighing the Biblical evidence against other evidence, it is plausible to take (Inspiration) to be a derived principle. But if it is a matter of granting Biblical evidence independent authority over a certain domain of propositions, as Bellarmine wished to do, (Inspiration) becomes fundamental: its use cannot be accounted for in terms of other fundamental principles.

This also helps better to see what was at stake in Bellarmine's discussion with Galileo. By introducing different procedures of adjudication, Galileo is moving in the direction in which (Inspiration) might still be regarded as true but will progressively become epistemically irrelevant with regards to matters of natural fact: the Bible will simply be interpreted in accordance with the deliverances of science, so that it no longer constitute a self-standing source of evidence.<sup>29</sup> In this way, choices in adjudication can give rise to the phenomenon that fundamental principles lose their epistemic standing. If the adjudicatory procedures evolve in such a way that a principle no longer plays any independent role in justifying beliefs, it becomes merely derivative or even wholly irrelevant, so that epistemic actors can no longer be said to proceed in accordance with it at all. This is what happened to (Inspiration) in the centuries following the dispute.

Once we pay due attention to the crucial role played by adjudication between fundamental principles, it becomes clear that there is little insight to be gained by considering epistemic principles by themselves. It is only against the background of further adjudicating principles that we can assess their status. This also impacts how we think about the purported absolute correctness of our epistemic principles. It might well be the case that principles like (Observation), (Deduction) and (Induction) play a role in all epistemic systems that we can conceive of, which is definitely not the case for a principle like (Inspiration). But it is not clear what is gained by concluding from this fact that these principles themselves must be absolutely correct. They are epistemically impotent if not embedded within an epistemic system that also includes adjudicating principles

---

<sup>29</sup>As we saw, Galileo's own position was slightly more complicated in that he allowed (Inspiration) to provide evidence for the limited domain of claims about the natural world about which empirical research methods had to remain silent.

that specify how to use those principles in different situations.<sup>30</sup> When deciding what to believe, we can never simply defer to the fundamental principles in isolation. Thus, if our epistemic procedures have an absolute grounding, this must be because the adjudicating principles are themselves absolutely correct. It is precisely this claim, we have argued, that the relativist calls into doubt on the basis of historical evidence.

### 4.3 Blind entitlement and equal validity

We are now in a position to revisit Boghossian's notion of blind entitlement. We already noted that Boghossian's appeal to blind entitlement begs the question against the relativist, insofar as he assumes that it allows one to establish a system's absolute correctness (see Section 2.2). Relativists will agree, of course, that epistemic agents find themselves with an epistemic system that they are entitled to use. What is revealed by cases such as the Galileo/Bellarmino dispute, however, is that this does not thereby put these agents in a position to unequivocally address any novel epistemic situation that can arise. In some cases, their epistemic system, with its existing adjudicating principles, simply does not provide a clear-cut answer to novel questions of justification. Thus, their blind entitlement does not put them into a position to establish the absolute correctness of whatever extended procedures of adjudication they end up settling on.

This line of reasoning allows us to locate more precisely at which exact point historical evidence militates against an appeal to absolute facts. Boghossian writes:

As in the case of our linguistic and conceptual abilities, our ability to form rational beliefs is productive: on the basis of finite learning, we are able to form rational beliefs under a potential infinity of novel circumstances. The only plausible explanation for this is that we have, somehow, internalized a rule that tells us, in some general way, what it would be rational to believe

---

<sup>30</sup>Note that this includes adjudications between applications of one and the same principle, e.g. when confronted with two seemingly conflicting observations. Compare the example above of Galileo's being confronted with the seemingly straightforward observation of the movement of the Sun in the sky on the one hand and his telescopic observations which he took to show that the Sun is stationary on the other hand.

under varying epistemic circumstances. (Boghossian, 2008a, p. 483) <sup>31</sup>

No one can deny that that what we learn puts us in a position to form rational beliefs in novel circumstances. The question is how it does so. Boghossian seems to think that it does so by antecedently fixing the rules that determine which beliefs it is rational to have in any novel circumstance whatsoever, so that our only task is to find out what those rules are, and apply them to our current evidential situation. Our way of elaborating the minimal point, however, would be to say that what we have learned puts us in a position to develop new procedures for adjudication when required, in ways that rationally extend our existing epistemic system. Such rational extensions, however, can be open-ended, in the sense that nothing contained in the conjunction of our epistemic system and the novel circumstances need always determine a unique such rational extension (to be sure: it often does, but not always, and the difficult cases are usually those circumstances that are, in some sense, fundamentally novel). This is not to say, to be clear, that anything goes. To say that such rational extensions are not necessarily uniquely fixed, is not to say that they are not constrained. For instance, in the case of Bellarmine, resisting Copernicanism by disregarding Galileo's telescopic observations altogether would indeed be irrational. Bellarmine had to find a principled way to assign an epistemic status to those observations within the existing epistemic system, something he did by invoking antecedently acknowledged considerations of underdetermination and antecedently established practices of Bible interpretation. Here, one could proceed to ask: are such constraints on the rationality of such extensions then, at least, objective? That is: are there absolute facts of the matter as to which options are and which are not rational? We believe that it is not necessary for our project in this paper to take a stance on the matter. If we have shown that there can be multiple, equally rational, and fundamentally different ways of further developing an epistemic system when confronted with novel circumstances, we have shown Boghossian's absolutism to be false. It is not immedi-

---

<sup>31</sup>As we already pointed out, these internalized rules would have to include rules on how to adjudicate, if Boghossian's absolutism is to have any bearing on our actual epistemic practices.



ately clear to us what exactly would be at stake in the further question whether there are absolute facts of the matter with regards to which such developments are rational, and which are not. Indeed, for us, this is an indication that the initial way of framing the matter in terms of the absolute correctness of epistemic principles does not get to the heart of the matter.

Boghossian himself briefly considers what he calls “absolutist versions” of relativism (Boghossian, 2004, p. 94, fn. 5). He says that he wishes to take as his target “the much more radical ‘postmodern’ view which attempts to evade commitment to any absolute epistemic truths of any kind”. He adds: “It is easy to see what might motivate someone to take seriously the idea that there are no absolute epistemic truths of any kind; it is much harder to see what would motivate the moderate view that, while there are some absolute epistemic truths, there are many fewer than we had been inclined to suppose, or that they make essential reference to such parameters as a thinker’s starting point”. We propose, however, that it is exactly historical cases such as the Galileo/-Bellarmine dispute that could motivate such a “moderate” view. Boghossian does not seem to have a stable account of the relativist’s main motivation. In his book, his point of departure is not the abstract claim that there are no absolute epistemic facts, but the thesis he calls “Equal Validity”. It is this thesis that Boghossian finds proclaimed by his colleagues in the humanities and social sciences, and which he wishes to reject. Now, we have shown how careful attention to the historical evidence can be taken to confirm a thesis of Equal Validity, more precisely the thesis that there can be, in a given epistemic situation, multiple, equally valid ways of extending the procedures of adjudication of an epistemic system. One upshot of this view is that different epistemic agents such as Galileo and Bellarmine can be equally justified in holding contradictory beliefs in the same epistemic situation. These are claims, it seems to us, that Boghossian is not willing to accept, irrespective of whether the equal validity of these procedures of adjudication is itself an absolute epistemic fact or not.<sup>32</sup> It are such versions of Equal Validity,

---

<sup>32</sup>(MacFarlane, 2008, p. 398) already pointed out that Boghossian’s thesis of Equal Validity need not rely

grounded in what we might call localized phenomena of symmetric open-endedness of epistemic systems in certain epistemic situations, that are the primary focus of many relativists. By downplaying the issue of adjudication, the very nature of the issue that occupies the relativist threatens to remain invisible, since this open-endedness of matters of adjudication cannot be captured in terms of the absolute correctness (or not) of a certain set of self-standing fundamental epistemic principles. Once this is seen, the further technical question whether the Equal Validity at issue is itself to be conceived in absolutist or relativist terms, is of lesser importance. If it would turn out that, indeed, a relativist construal is incoherent, we expect relativists to respond along the lines of: “So be it. Let us become absolutists about Equal Validity”.

## 5 Conclusion

As Boghossian characterizes the relativist argument, the relativist conclusion is meant to arise by considering how a confrontation with a fundamentally different epistemic system brings us to doubt the correctness of our own epistemic system. Our discussion reveals that this is not a good way to capture what the relativist is after. A more adequate formulation would be: the relativist conclusion arises from the observation that no epistemic system can, by itself, unequivocally settle all potential matters of adjudication that might arise in fundamentally novel epistemic situations. Although this is meant, of course, to undermine the idea that our own epistemic system, with its historically developed procedures of adjudication, is absolutely correct, this is not meant to bring us to doubt the rationality of our using that system in deciding epistemic matters. Rather, it is meant to make us reconceive that rationality. If the focus is on historical cases, this reconception will have a backwards-looking character. By coming to recognize that Galileo’s development of his epistemic system was only one of multiple equally valid ways to go, we come to recognize that an acknowledgment of the rationality of our own

---

on the claim that there are no absolute epistemic facts.

epistemic system – which is a product of Galileo’s views – need not preclude the recognition that there were, at certain historical crossroads, other options available that were equally rational. At the same time, this recognition also has a forward-looking effect. After all, there is no way to exclude that we will encounter similar cross-roads, that we will be faced with genuinely novel questions of justification to which our current epistemic system offers no clear-cut answers. Again, this is not meant to undermine our acceptance of our current epistemic system or to show that it is somehow ‘deficient’. Instead, it is meant to help us recognize that conceiving of ourselves as rational does not mean conceiving of ourselves as being in the possession of a system that somehow deals in advance with all novel epistemic situations that scientific, technological, cultural, political, or any other kind of evolution may throw at us. It is meant to help us recognize that our capacity to deal with novel situations is precisely that: a capacity to *deal* with them, to develop novel ways of proceeding where the epistemic tools we have at our disposal yield no determinate way forward. It is meant, we could say, to help us self-consciously exercise our *creative* rationality, which is just as essential to who we are with regards to epistemic matters as it is with regards to any other.

## References

- Ariew, R. (1987). The Phases of Venus Before 1610. *Studies in History and Philosophy of Science Part A*, 18(1), 81–92.
- Baghramian, M., & Coliva, A. (2019). *Relativism*. London; New York: Routledge.
- Barker, P., & Goldstein, B. R. (1998). Realism and Instrumentalism in Sixteenth Century Astronomy: A Reappraisal. *Perspectives on Science*, 6(3), 232–258.
- Blackwell, R. J. (1992). *Galileo, Bellarmine, and the Bible*. Notre Dame, Ind.: University of Notre Dame Press.
- Boghossian, P. (2001). How Are Objective Epistemic Reasons Possible? *Philosophical Studies*, 106(1), 1–40.

- Boghossian, P. (2004). *Fear of Knowledge. Against Relativism and Constructivism*. Oxford: Oxford University Press.
- Boghossian, P. (2008a). Epistemic Rules. *Journal of Philosophy*, 105(9), 472–500.
- Boghossian, P. (2008b). Reply to Wright, MacFarlane and Sosa. *Philosophical Studies*, 141(3), 409–432.
- Carter, J. A. (2016). *Metaepistemology and Relativism*. Palgrave Macmillan.
- de Santillana, G. (1955). *The Crime of Galileo*. Chicago: University Of Chicago Press.
- Fantoli, A. (2003). *Galileo, for Copernicanism and for the Church* (3rd ed.). Vatican City, Indiana: Vatican Observatory Publications, Notre Dame University Press.
- Finocchiaro, M. A. (1986). Toward a Philosophical Interpretation of the Galileo Affair. *Nuncius*, 1, 189–202.
- Finocchiaro, M. A. (1989). *The Galileo Affair: A Documentary History*. Berkeley, Los Angeles, London: University of California Press.
- Geertz, C. (1984). Anti Anti-Relativism. *American Anthropologist*, 86(2), 263–278.
- Hales, S. D. (2014). Motivations for Relativism as a Solution to Disagreements. *Philosophy*, 89(1), 63–82.
- Howell, K. J. (2002). *God's Two Books: Copernical Cosmology and Biblical Interpretation in Early Modern Science*. Notre Dame, Ind: University of Notre Dame Press.
- Jardine, N. (1984). *The Birth of History and Philosophy of Science*. Cambridge: Cambridge University Press.
- Kinzel, K., & Kusch, M. (2018). De-idealizing Disagreement, Rethinking Relativism. *International Journal of Philosophical Studies*, 26(1), 40–71.
- Kusch, M. (2009). Boghossian on Epistemological and Moral Relativism: A Critique. *Unpublished manuscript*.
- Kusch, M. (2017). Epistemic Relativism, Scepticism, Pluralism. *Synthese*, 194(12), 4687–4703.

- Kusch, M. (Ed.). (2019). *Handbook of Philosophy of Relativism*. London; New York: Routledge.
- Lattis, J. M. (1994). *Between Copernicus and Galileo: Christoph Clavius and the Collapse of Ptolemaic Cosmology*. Chicago: University of Chicago Press.
- Lerner, M.-P. (2005). The Heliocentric 'Heresy': From Suspicion to Condemnation. In E. McMullin (Ed.), *The church and Galileo* (pp. 88–116). Notre Dame, Ind: University of Notre Dame Press.
- MacFarlane, J. (2008). Boghossian, Bellarmine, and Bayes. *Philosophical Studies*, 141(3), 391–398.
- McMullin, E. (1998). Galileo on Science and Scripture. In P. Machamer (Ed.), *The Cambridge Companion to Galileo* (pp. 271–347). Cambridge: Cambridge University Press.
- Seidel, M. (2014). *Epistemic Relativism. A Constructive Critique*. London: Palgrave Macmillan.