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Boghossian, Bellarmine, and Galileo: Adjudication and Epistemic Relativism

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Many prominent arguments for epistemic relativism take their departure from the observation that a certain kind of epistemic symmetry is present in particular empirical cases. In this paper, we seek to attain further clarity about the kind of symmetry at issue, and the sort of relativism to which such symmetry can reasonably be taken to give rise. The need for such an investigation is made apparent, we believe, by the fact that prominent anti-relativist arguments such as that advanced by Boghossian in his influential book *Fear of Knowledge* (2006) yield distorted pictures of the matter. Following Boghossian, we present our argument through a detailed consideration of the dispute between Bellarmine and Galileo concerning heliocentrism. Contrary to what Boghossian claims, the relevant sort of symmetry does not concern a difference in fundamental epistemic principles between Bellarmine and Galileo, but rather a much more localized difference in procedures for adjudication between shared principles in the novel epistemic circumstances generated by Galileo's telescopic observations. Bellarmine and Galileo advance fundamentally different procedures of adjudication that are nevertheless equally rational. The upshot is not so much the denial that there are absolute epistemic facts as such, as Boghossian thinks, but rather the denial that there is an absolute fact of the matter as to which was the most rational way to proceed: Bellarmine's or Galileo's. What this gives us, is the denial that there is a *certain kind* of absolute epistemic fact.

Paul Boghossian's influential book *Fear of Knowledge* (2006) has reinvigorated the philosophical debate on epistemic relativism.[1] In the introduction to his book, Boghossian characterizes relativism as the idea that "there are many

1 See Baghramian and Coliva (2020) and Kusch (2020) for representative overviews of recent philosophical literature on relativism.

radically different, yet 'equally valid' ways of knowing the world, with science being just one of them"—an idea that he claims has been adopted within "vast stretches of the humanities and social sciences" (2006, 2). Boghossian takes it to be the task of analytical philosophers to counteract this, by showing how a careful analysis of this thesis of Equal Validity reveals it to be mistaken or even incoherent.

There are, of course, many versions of epistemic relativism. Our interest lies in relativist positions that take their departure from the observation that a certain kind of epistemic symmetry is present in particular empirical cases, a kind of symmetry that is taken to support a relativistic conclusion. That Boghossian is concerned to address this sort of relativism is apparent both from his choice of targets,[2] and from his sustained analysis of one prominent such empirical case: the dispute between Bellarmine and Galileo about heliocentrism. Boghossian recognizes that this case has been taken to manifest a form of epistemic symmetry that supports a relativistic conclusion, and seeks to show why this is a mistake.

What is striking, however, is Boghossian's cavalier way of handling the historical details of the case, to the point of openly admitting that he merely offers "some potted astronomical history" (2006, 59). He relies on an outdated source (Santillana 1955), and feels free to disregard the historical facts even as reported there: contrary to what Boghossian (2006, 60) suggests, Bellarmine never refused to look through the telescope, but was careful enough to look for himself—as explicitly mentioned by Santillana (1955, 28)—and moreover to ask the opinion of the expert astronomers at the Jesuit Collegio Romano. It may be the case that there is an unwarranted "fear of knowledge" amongst scholars in the humanities and social sciences, but those scholars could well retort that analytic philosophers should be reminded that there is such a thing as historical knowledge as well—and that there is no need to be fearful of it either.[3]

Boghossian's sloppy treatment of the historical evidence has been pointed out before,[4] but we wish to provide a more sustained investigation of its philo-

2 These targets include such relativists as Shapin, Schaffer, Barnes, and Bloor, whose relativist positions cannot be disentangled from their study of empirical cases.

3 See e.g. Wootton (2007).

4 See e.g. MacFarlane (2008), Kusch (2009), Seidel (2014). Note that our focus on Boghossian's sloppiness is not meant to suggest that relativists are somehow immune to such sloppy treatment of historical, anthropological, or other evidence. Thanks to an anonymous referee for pressing us on the need to make this point explicit.

sophical significance than has been done so far.[5] We will argue that a careful consideration of the Bellarmine/Galileo dispute reveals that Boghossian has misunderstood the sort of epistemic symmetry that is at issue, and thereby the relevant thesis of Equal Validity. Contrary to what Boghossian claims, the symmetry is not situated on the level of the fundamental principles of an epistemic system, but rather on the level of the procedures for adjudicating between such fundamental principles.[6] The relevant thesis of Equal Validity then becomes the thesis that—when faced with a novel epistemic situation such as the one generated by Galileo's telescopic observations—there may be available fundamentally different yet equally rational procedures for how to adjudicate between epistemic principles in this novel situation. The upshot is not so much the denial that there are absolutely correct epistemic principles as such, as Boghossian thinks, but rather the denial that there is an absolute fact of the matter about which was the most rational way to proceed: Bellarmine's or Galileo's. In terms of Boghossian's initial statement quoted above: the relevant sense in which there may be "different ways of knowing the world" that are equally valid, is quite different from what Boghossian makes it out to be.[7] As we will explain, this yields quite a different understanding of the sort of reconception of our epistemic rationality that the relativist is after.

We start by discussing Boghossian's own construal of the relativist argument. According to him, it revolves around the observation that—when we

5 Kinzel and Kusch (2018) have similarly criticized epistemological debates on relativism as suffering from a lack of attention to empirical details. We take our account to be largely complementary to theirs. Whereas we try to make our point by advancing a thoroughgoing internal critique of Boghossian's treatment of the Bellarmine/Galileo debate, they are more concerned with setting up a general theoretical framework for epistemological relativism in terms of what they call "situated judgment."

6 Boghossian chose to focus specifically on the Bellarmine/Galileo dispute because it was invoked by Richard Rorty to argue for a relativistic conclusion (Rorty 1979, 328–333). Because Rorty's use of the case is rudimentary, it is unclear at which level Rorty himself wishes to locate the epistemic symmetry.

7 It is natural to respond that, if the relativist claim as we construe it is not that there are no absolute epistemic facts as such, then it is not, in fact, a *relativist* claim. Our discussion aims to show that the better conclusion to draw is that it is the characterization of relativism as a blanket denial of the existence of absolute epistemic facts that needs to go. The core relativist commitment does not lie in such a blanket denial, but in the sort of thesis of Equal Validity that we will articulate. Note, in this regard, that MacFarlane already pointed out that Boghossian's thesis of Equal Validity need not rely on the claim that there are no absolute epistemic facts (2008, 398). This reveals that Boghossian's target is unstable: does he wish to show that there are absolute epistemic facts, or does he wish to argue against Equal Validity? These are not one and the same project. We will return to these issues in more detail below.

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are confronted with an alternative epistemic system consisting of a different set of fundamental epistemic principles—we cannot offer a non-circular justification of the fundamental principles of our own epistemic system. From this, the conclusion is to follow that there are no absolutely correct epistemic principles. Bellarmine's epistemic system is meant to constitute an example of such an alternative system. Boghossian argues, however, that Bellarmine's system does not qualify because it involves principles of adjudication that are *ad hoc*.

In this way, Boghossian takes the relevant form of epistemic symmetry to be situated on the level of a confrontation between the fundamental principles of different epistemic systems. We argue that a careful analysis of the historical details of the Bellarmine/Galileo dispute reveals that this misconstrues the nature of the case: what is at issue in the debate between Bellarmine and Galileo, is not which fundamental principles to accept (or how to justify them), but rather the issue of how to *adjudicate* between those principles in the face of the novel epistemic situation generated by Galileo's telescopic observations. The epistemic symmetry lies in the fact that they develop fundamentally different procedures of adjudication that are equally rational and cannot be justified in a non-circular way.

Next, we discuss how this deepened understanding of the historical case problematizes several aspects of Boghossian's argument. Not only does it reveal that Boghossian's somewhat cavalier characterization of Bellarmine's procedures of adjudication as *ad hoc* is unfounded, it also reveals that—for Boghossian's absolutism to have any bearing on our actual epistemic practices—it must pertain not only to fundamental epistemic principles, but also to procedures of adjudication. The relativist thesis of Equal Validity—once properly understood—does not automatically issue in a blanket denial of the existence of absolute epistemic facts as such, but rather in a denial of the existence of a *certain kind* of absolute epistemic facts: facts that would objectively settle in advance, for any epistemic situation that may arise, what the uniquely correct procedures of adjudication are in that situation. It is this absolutist commitment, we claim, that is put under serious pressure by the historical evidence. Philosophical analyses that identify epistemic systems with sets of fundamental principles without taking into account the matter of adjudication, however, are blind to this issue, and thereby blind to the core relativist concern, as we understand it.

1 Boghossian on the relativistic argument

1.1 *The argument: circular justifications*

We start by giving a reconstruction of Boghossian's construal of the relativist argument. According to Boghossian, the relativist 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 2006, 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" (2006, 76).

This argument depends on the presence of an alternative system, and it is here that Boghossian situates the relativist's invocation of historical cases such as the Galileo/Bellarmine 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 2006, 64)

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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 2006, 64). These principles are "implicit" in his epistemic practice, he operates "according to" them (2006, 65). That these principles are fundamental means that their "correctness cannot be derived from the correctness of other epistemic principles" (2006, 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 revolves around the Sun.

Bellarmine, on the other hand, is taken to use 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 2006, 69)

Using this principle, Bellarmine concludes that it is rational to believe that the Sun revolves around the Earth.

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. Boghossian's 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's and Bellarmine's ways of knowing the world are equally valid.

Boghossian's reply to this argument has two main components, which we take up in turn. First, he questions the cogency of the inference from the presence of fundamentally different epistemic systems to the non-existence of absolute epistemic facts (section 1.2). In a second step, he questions not this inference, but the premise that Bellarmine presents us with a fundamentally different epistemic system (section 1.3).

1.2 *Defusing the argument: blind entitlement*

To block the inference from the presence of fundamentally alternative epistemic systems to the non-existence of absolute epistemic facts, 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" (2006, 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" (2006, 101). In the absence of an alternative system satisfying 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 (2006, 103).[8]

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: irrespective of whether it instills legitimate doubt or not, the relativistic conclusion that there are no absolute epistemic facts never follows. In this way, 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. Boghossian's characterization of the relativistic argument makes it proceed more or less independently from the nature of the actual cases studied by those scholars in the humanities who, according to Boghossian, accept Equal Validity. Given the emphasis that such scholars usually place on such cases and the epistemic symmetry which they take to be manifested in them, this raises the suspicion that Boghossian's way of framing the matter fails to take the full measure of their position, a suspicion that will be confirmed in our subsequent discussion.

8 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 such 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*" (2008c, 428). In an earlier paper he still took it to be plausible that absolute epistemic facts are *known*, not merely that they can be known (2001, 4).

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We can sharpen this suspicion. Boghossian confidently states that "perhaps it is overdetermined that the relativist will agree" with the idea of blind entitlement (2006, 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.[9] In assuming this, Boghossian is begging the question against the relativists. As will be shown 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/Bellarmine dispute. 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. As we will see, the resulting understanding of our blind entitlement to our own epistemic system is not in fact incompatible with the thesis of Equal Validity that the relativist seeks to defend.

1.3 *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" (2006, 103). The main question, as Boghossian sees it, 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 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" (2006, 104). Whatever the merits of that surprising theory, we would no longer be dealing with a fundamentally different epistemic system, so that the relativistic 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 2008c; MacFarlane 2008). Suppose that (REVELATION)

9 See already Kusch (2009).

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. (2008c, 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*. (2006, 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" (2006, 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?" (2006, 104). Boghossian seems to see the situation as follows. 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, beyond a dogmatic adher-

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ence 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 does not constitute a genuine alternative in Boghossian's more demanding sense. To save Bellarmine's position from being irrational in this way, we must take (REVELATION) as a derived principle that arises from his alternative theory about the world rather than pertaining to the fundamental make-up of his epistemic system as such. This, however, means that Bellarmine does not have a different epistemic system at all, leaving the relativist without a case upon which to base their argument.

As will become apparent, there are several aspects of Boghossian's argument that are problematic. For now, however, let us simply notice that the relativist may resist the argument by showing that Bellarmine had more principled grounds for his adjudication principle than Boghossian allows. Here, Boghossian's cavalier treatment of the historical evidence becomes all the more striking, since the claim that Bellarmine's principle is *ad hoc* must be backed by a historical investigation of the considerations that he himself advanced in favor of it, an investigation which Boghossian does not provide. Such an investigation, it will now be shown, not only reveals Boghossian's claim to be unfounded, it also reveals that Boghossian's whole characterization of the relativist argument misses both the nature and importance of the issue of adjudication as such, misconstruing the way in which this issue figures in the historical case and thereby also misconstruing the thesis of Equal Validity which the relativist argument is meant to establish.

2 The historical evidence

2.1 *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, 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" (1989, 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.[10]

2.2 *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' publication of his treatise in 1543 to its suspension in 1616.[11] 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 and Goldstein 1998, 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 true model. This scepticism was frequently coupled with an insistence on the fact that absent

10 Finocchiaro's "documentary history" (1989) presents English translations of the most important documents. Fantoli (1994) provides a rich and up-to-date interpretation of the unfolding of the historical case. Blackwell (1991) gives much background on Bellarmine and offers translations of further relevant documents.

11 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, chap. 7) and Barker and Goldstein (1998), which provide necessary corrections to many simplistic presentations.

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any human means to directly observe the structure of the heavens, only God could provide the missing information.[12]

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.[13] 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.[14]

This did not settle matters, though. In the meantime, the model proposed by Tycho Brahe in the late sixteenth century was gaining many followers. In this model the Sun and Moon circle the Earth, whereas all planets revolve around the Sun (see Lattis 1994, chaps. 2, 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.

12 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 often invoked in justifying a sceptical attitude towards mathematical astronomy. As it is the underdetermination problem that figures most prominently in the debate between Galileo and Bellarmine, we will not treat these other factors explicitly in our text. Note, to be clear, that we will not infer relativism *from* underdetermination—a procedure that has been criticized extensively in the literature, e.g. Boghossian (2006, chap. 8), Seidel (2014, chap. 2). Rather, underdetermination figures in the debate *between* Bellarmine and Galileo as one of the relevant considerations for determining the epistemic status of Galileo's telescopic observations. Thanks to an anonymous referee for pressing us on the need for this clarification.

13 See Evans (1998, 410–413) for a clear and concise discussion of these mathematical virtues.

14 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.

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.[15] 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.

2.3 *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.[16] 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 of the cosmos. Following the sceptical 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 the Copernican system 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 pas-

15 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, chap. 3).

16 See Lerner (2005) for some early reactions to Copernicus' ideas.

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sages 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 sceptical 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.

2.4 *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.[17] 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, 292), which states that in case of statements the truth of

17 To a certain extent, interpretations of this complex letter will always be controversial. Compare e.g. McMullin (1998) with Finocchiaro (1986) and Fantoli (1994, 146–168). Our reading is similar to the one defended by Finocchiaro and Fantoli.

which could possibly be demonstrated by appeal to experience and reason, we should not yet decide on Bible interpretations that possibly contravene that truth.[18]

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. His example was "whether the stars are animate" (Finocchiaro 1989, 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.[19] 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.[20]

18 "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, 96)

19 Finocchiaro (1989, 105):

> [...] 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.

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.

20 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

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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 helio-centrism can be demonstrated by observation and reason (Finocchiaro 1989, 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" (1989, 103). He declines, however, to address the remaining underdetermination due to the Tychonic alternative, merely stating that "because of many new observations [...] one is discovering daily that Copernicus's position is truer and truer" (1989, 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 at the time.

2.5 *Bellarmine and the principle of consensus*

Bellarmine'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 1991, 265). In his view, it was already clear that the literal

for statements about natural phenomena at other places (see e.g. McMullin 1998, 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 19). 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 1994 for more detail on this line of argument.)

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 1991, 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.

2.6 *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 1991, 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" (1991, 274). It is easy to see, however, that Bellarmine could have leveled exactly the same accusation at Galileo: he was begging the question if

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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 the Bible and observation are equally bona fide sources of evidence. Both agreed that further guidelines were needed to decide what to believe on their basis. Neither the Bible 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 how to proceed 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 patterns 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.[21] 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 such a way as to leave intact the justification of geocentrism on the basis of Biblical evidence.

3 Reconstructing the relativist argument

3.1 *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. (2006, 69)

21 This is also how Bellarmine appears to Boghossian, as we have seen. Boghossian's failure to genuinely engage with the historical evidence renders him incapable of seeing that this characterization of Bellarmine's epistemic procedure as *ad hoc* relies on background premises regarding the relevant issues of adjudication that will appear equally *ad hoc* to Bellarmine, and which cannot be provided with a non-circular justification.

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This neglects the special status of the Bible: If p is indeed the revealed word of God as claimed by the Bible, then p is true and must be believed, full stop. Both Galileo and Bellarmine accept that whatever is stated in the Bible is true. 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 any proposition 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 argues that we can understand Bellarmine's reliance on Biblical evidence as an application of a more general principle about the testimonial reliability of books (2014, 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 this misconstrues Bellarmine's position. While physics books can make false statements, the Bible cannot. 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. On this, both Bellarmine and Galileo agree. The proper analogy, then, is not between the Bible and physics books, but between the Bible and the Book of Nature: what is written in the Book of Nature, is *ipso facto* true. As with the Bible, the question becomes how to read the Book of Nature. 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" (2006, 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).

We can even say that Galileo and Bellarmine agree to a large extent on the validity of both adjudication principles, when taken abstractly. Their disagreement arises once the question is raised which of the two is applicable in the case of the debate on heliocentrism: 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 that determines the relevant procedures of adjudication, and that cannot be further defended in a non-circular way.

Once this crucial role played by matters of adjudication is highlighted—as Boghossian (2008c) admits it must be if we are to attain an adequate account of our epistemic practice—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, wherein procedures of adjudication play an ineliminable role. Or he claims that there are absolute facts about the correct procedures of adjudication 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 which are such that there are available different procedures of adjudication none

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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 somehow always objectively settled which procedure of adjudication is the correct one and that we are always—at least in principle—in a position to know what this correct procedure is.[22] In this vein, while admitting that matters of adjudication are "complex and variegated" (2008c, 421), Boghossian stresses that they must nevertheless be decidable *a priori*, presenting 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" (2008c, 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 at all, if "correct" is read as "absolutely correct," since according to them there are no absolutely correct adjudicating principles.[23] 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 procedures of adjudication 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/Bellarmine dispute is that an existing

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

23 To be more precise: there are no *uniquely* absolutely correct adjudicating principles. Below, we will suggest that the relativist may adopt the view that it is absolutely settled—in each epistemic situation—which of the available procedures of adjudication qualify as epistemically rational, as long as it is maintained that there need not be a unique such procedure. As we construe the relativist position, its core commitment lies in the presence of a fundamental form of epistemic symmetry with regards to adjudication in cases such as the Bellarmine/Galileo debate, where the question whether this symmetry is itself "absolute" or "relative" in character is of lesser importance.

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 agreed before the advent of Galileo's observations. 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 articulate their respective answers to 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 answer on how to proceed. As we have tried to show, both Galileo and Bellarmine presented coherent ways to employ their epistemic system in the situation at hand, with incompatible 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.[24] 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.[25]

24 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, and most importantly, the invocation of such further evidence remains circular from Bellarmine's point of view, since it relies on Galileo's procedure of adjudication. Alternatively, if Bellarmine's procedure had been adopted, it is possible that further theological evidence against heliocentrism would have been gathered, the invocation of which would remain question-begging from Galileo's point of view.

25 In this regard, it should be noted—contrary to what Boghossian suggests—that Galileo's way of supporting heliocentrism with observational evidence is far from straightforward, and itself requires substantial theoretical work. It is all too easy to forget that Copernicanism itself flies

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3.2 *Fundamental difference*

We claim that Bellarmine and Galileo should be seen as proposing fundamentally different epistemic systems, thus effectively countering Boghossian's argument (see section 1.3). There are two main reasons why one could doubt this. The first arises from the question whether a mere difference in adjudication can lead to fundamentally different systems. The second consists in questioning once again the status of (INSPIRATION) as a purportedly fundamental epistemic principle.

The first reason, we think, issues from an underestimation of what may be described as the epistemic depth of issues of adjudication. 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" (2008c, 419). This leads to a picture of Bellarmine claiming that the Biblical evidence for geocentrism trumps the astronomical evidence against it.[26] 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, on this conception, no fundamental difference between their epistemic stances, and thus no good reason to deny the existence of absolute epistemic facts. In response to our historical analysis, it will perhaps be admitted that Bellarmine was more rational than he had initially been made out to be, and that Galileo and Bellarmine were perhaps not yet in a position to decide on heliocentrism. But, crucially, this symmetry will now be interpreted in terms of a lack of sufficient evidence: there was not yet enough astronomical evidence to tip the balances in Galileo's

in the face of much observational data. Does not Galileo, as Bellarmine made sure to point out (Blackwell 1991, 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 the movement of earthly objects? Is this not an arbitrary distinction? And so on. Of course, it is to address such 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) (2006, 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."

26 See e.g. Baghramian and Coliva (2020, 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.

favour—the astronomical evidence was not yet sufficiently strong to trump the Biblical evidence, due to the sort of issues of underdetermination that we laid out above—so that suspension of judgment was perhaps the appropriate response.

We claim, however, that such an account does not properly take into account the upshot of our historical analysis. 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 to the issue at hand. The issue of adjudication concerns what kind of information can be evidence for what kind of claim to begin with, and not merely the weighing of contrary evidence, as Boghossian claims.[27]

Once this is seen, it becomes hard to deny that different procedures of adjudication can give rise to fundamentally different systems. Even though Galileo and Bellarmine share their fundamental principles, and even nominally agree on the sort of adjudication principles that are in play, there is a deep mismatch between them concerning how to properly employ those principles of adjudication in the novel epistemic situation generated by Galileo's telescopic observations, so that they arrive at entirely different ideas of what it amounts to to gather the relevant evidence and use it to justify certain claims, resulting in radically different accounts of the justificatory status of Galileo's observations with regards to our beliefs about the make-up of the heavens. When faced with the question of heliocentrism, one will read the Holy Fathers' commentaries on the Bible, while the other will look through a telescope, and both will regard what the other does as fundamentally misplaced. Such differences cannot be brushed aside as merely "derivative" or "superficial," as

27 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" (2014, 80). What Hales calls "meta-evidence" corresponds to evidence ("reasons" is perhaps a better term here) for the procedures of adjudication.

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is further brought out precisely by the deep incompatibility of both procedures and the way in which it is hopeless to try to justify them in a non-circular way.

This also allows us to re-evaluate 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" (2006, 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. Presumably, they would say the same about (INSPIRATION).[28] 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.[29] 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 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. To properly understand the status of (INSPIRATION) in Bellarmine's epistemic system one must first understand his procedures of adjudication. These cannot be separated.

This also helps better to see what was at stake in Bellarmine's discussion with Galileo. Galileo's procedures of adjudication move us in the direction in which (INSPIRATION) may still be regarded as true, but will progressively become epistemically irrelevant with regards to matters of natural fact. Because the Bible is no longer regarded as having any self-standing authority regarding such matters of natural fact, it will simply be interpreted in accordance with the deliverances of science, thereby losing its status as an autonomous

28 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.

29 See Kusch (2017) for related considerations, yet without highlighting the role of adjudication.

source of evidence.[30] In this way, choices in adjudication can give rise to the phenomenon that fundamental principles lose their epistemic standing. If the procedures of adjudication 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. This is what happened to (INSPIRATION) in the centuries following the dispute.

Such considerations also impact 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 coherent 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 that these principles must be absolutely correct. They are epistemically impotent if not embedded within an epistemic system that complements them with procedures of adjudication.[31] 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 that renders them uniquely rational, this must be because the adjudicating principles themselves have such an absolute grounding. It is precisely this claim, we have argued, that the relativist calls into doubt on the basis of historical evidence.

3.3 *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 1.2). 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/Bellarmine dispute, however, is that this does not thereby put these agents in a position to unequivocally address any novel epistemic situation that arises. In some

30 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.

31 Note that this includes adjudications between applications of one and the same principle, e.g. when confronted with two seemingly conflicting observations. Compare how Galileo had to find a way to deal with the seemingly straightforward observation of the movement of the Sun in the sky, as mentioned above.

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cases, their epistemic system, with its existing procedures for adjudication, simply does not provide a clear-cut answer to novel questions of justification. Thus, their blind entitlement does not put them in 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 under varying epistemic circumstances. (2008b, 483) [32]

No one can deny the minimal point 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 circumstances whatsoever, so that our only task is to find out what those rules are, and apply them to our current situation. Our way of elaborating this minimal point, however, would be to say that what we have learned puts us in a position to develop new procedures of 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. *Pace* Boghossian, however, this is not what Bellarmine did. Instead, he developed a principled way to assign an

32 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.

epistemic status to those observations within his 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 fundamentally different yet equally rational ways of further developing an epistemic system when confronted with novel circumstances, we have established our target thesis of Equal Validity. It is not immediately 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 go to the heart of the matter.

Let us elaborate a bit on this point. Boghossian himself briefly considers what he calls "absolutist versions" of relativism (2006, 94fn5). 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

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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 using fundamentally different epistemic procedures to justify their beliefs, procedures that result in their adopting contradictory beliefs on the basis of the same available information. We submit that it is such versions of Equal Validity, grounded in what we might call localized phenomena of symmetric open-endedness of epistemic systems with regards to matters of adjudication raised by certain novel epistemic situations, that are the primary focus of many relativists. Moreover, it seems to us that Boghossian would not be prepared to accept the existence of such thoroughgoing cases of epistemic symmetry—irrespective of whether that symmetry is taken to be "absolute" or "relative" in character—since he is at pains to argue that Bellarmine's epistemic procedures were indeed irrational, and that it is Galileo who should be said to have locked onto *the* correct epistemic system. 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". Rather than issuing in a blanket denial of the existence of absolute epistemic facts, the thesis of Equal Validity issues in a denial of the existence of a specific kind of absolute epistemic facts, facts that are meant to preclude the possibility of there being fundamentally different yet equally rational procedures for adjudication in a given epistemic situation. Even if Boghossian's argument that there must be absolute epistemic facts goes through, this does not refute Equal Validity, and thereby does not refute the sort of position that he initially presented as his target. Whether that position is in the end to be described as "relativist" or as "moderately absolutist" or something similar is a terminological question that is peripheral to the real philosophical issues at hand. What matters, is that it results in the claim that Bellarmine's and Galileo's epistemic procedures were equally rational in a way that is fundamentally at odds with Boghossian's absolutist commitments, commitments that themselves move beyond the mere blanket

assertion that there exist absolute epistemic facts.[33] To frame the debate as between a blanket assertion and a blanket denial of the existence of absolute epistemic facts, is to paint it with such a broad brush that all the underlying subtlety and complexity that renders it so interesting is erased, resulting in a picture that fails to adequately capture *both* the absolutist and the relativist position. It is the thesis of Equal Validity—and the question of how exactly to understand it—that should be the true locus of the debate.

4 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 necessarily 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 into 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 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, where we will ourselves be confronted with genuinely novel questions of justification to which our current epistemic system offers no clear-cut answers. What our analysis is

33 Recall that Boghossian himself is quite aware of this, as is made apparent both by his recognition that he needs absolute epistemic facts to be in some sense accessible to us, and by his recognition that his position requires that we are able to establish *a priori* which principles of adjudication are correct. Neither of these claims are entailed by the mere claim that there are absolute epistemic facts.

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meant to bring to the fore, is that to conceive of ourselves as rational does not mean to conceive of ourselves as being in the possession of an epistemic 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 such 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 answer. 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.*

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