

# Can We Be Skeptical About A Priori Knowledge?\*

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## Abstract

In this paper, we present a dialectical argument for a priori skepticism (i.e. the thesis that we can be skeptical about a priori knowledge). Then, we propose a framework that combines elements from inferential contextualism and logical conventionalism to offer a weak transcendental argument against a priori skepticism.

## 1 Introduction

Skepticism as an epistemic phenomenon is deeply rooted in our philosophical practices; it triggered the discussions of most of the great philosophers across centuries. Perhaps that is why Stroud (1984) assents that skepticism is embedded in the human condition:

I think that when we first encounter the sceptical reasoning ... we find it immediately gripping. It appeals to something deep in our nature and seems to raise a real problem about the human condition. (Stroud 1984, 39)

Historically, epistemic skepticism has been commonly applied to our knowledge of *a posteriori propositions* (e.g. propositions about the external world), which we call *a posteriori skepticism*. Nevertheless, we still can find some historical philosophers who extended this line of reasoning to our knowledge of *a priori propositions*. In his autobiography *Deliverance from Error* (1116), Al-Ghazali reflects on his need of a meta-faculty that corrects the errors of reason in a similar fashion to his usage of the faculty of reason to correct for the errors of senses:

... then sense-data spoke up: “What assurance have you that your reliance on rational data is not like your reliance on sense-data? Indeed, you used to have confidence in me. Then the reason-judge came along and gave me the lie. But were it not for the reason-judge, you would still accept me as true. So there may be, beyond the perception of reason, another judge. And if the latter revealed itself, it would give the lie to the judgments of reason, just as the reason-judge revealed itself and gave the lie to the judgments of sense.

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\*This paper is based on some sections from my MA thesis submitted to the American University in Cairo.

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The mere fact of the nonappearance of that further perception does not prove the impossibility of its existence. (60)

Similarly, Descartes was aware of the possibility of doubting our a priori knowledge. In *Mediation I* of his *Meditations on First Philosophy*, he wrote<sup>1</sup>:

What is more, since I sometimes believe that others go astray in cases where they think they have the most perfect knowledge, may I not similarly go wrong every time I add two and three or count the sides of a square, or in some even simpler matter, if that is imaginable? (CMS II 14)

We call skepticism about a priori knowledge, a *priori skepticism*. But since the notion of a priori knowledge is equivocal, it is worth pausing for a moment and defining what we mean by it. Audi (2008) classifies a priori propositions into at least four categories: 1) logical and mathematical propositions, 2) relational propositions between universals, 3) simple philosophical propositions (e.g. a belief is not a process), and 4) intuitive moral principles (e.g. killing is, *prima facie*, wrong). Here our use of the notion a priori propositions, and hence a priori skepticism, is limited to the category of “mathematical and logical propositions<sup>2</sup>”.

In contemporary times, a priori skepticism can be found, in one way or another, in the work of some influential twentieth-century philosophers like Von Neumann (1937a and b), Quine (1953), and Putnam (1979, 1983) who argue that some logical rules can be, *prima facie*, revised for empirical considerations (e.g. Quantum mechanics’ experimental results). Recently, and contra the empirically-motivated skeptical approach to a priori knowledge, Beebe (2011) presents a *rational* approach to a priori skepticism. His tactic was to twist the orthodox syllogistic argument used for external-world skepticism to fit into a priori skepticism. The a posteriori skeptical argument has the following traditional form: it starts with a skeptical hypothesis, concerning *P*, which cannot be epistemically negated. If the skeptical hypothesis cannot be neutralized, then our knowledge of *P* is not possible. The aforementioned structure is based on a paradoxical form<sup>3</sup> as the argument starts with a series of plausible premises (if taken individually), but ends up with a profoundly implausible conclusion. This paradoxical structure stems

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<sup>1</sup>He even considered, in Meditation III, the possibility that God has created him in a way to be deceived regarding a priori knowledge:

But what about when I was considering something very simple and straightforward in arithmetic or geometry, for example that two and three added together make five, and so on? Did I not see at least these things clearly enough to affirm their truth? Indeed, the only reason for my later judgment that they were open to doubt was that it occurred to me that perhaps some God could have given me a nature such that I was deceived even in matters which seemed most evident. (CMS II 25)

<sup>2</sup>The structure of a priori skepticism arguments might be extended to the other categories as well, but I will refrain from this laborious task in this paper.

<sup>3</sup>See Cohen (1988), DeRose (1995), and Wright (1991).

from the nature of the skeptical hypothesis which appeals to phenomenologically subjective scenarios that are indistinguishable from quotidian circumstances, but in which the subject still fails to have knowledge. Typically, these scenarios must satisfy a set of plausible epistemic constraints in order to generate proper skeptical hypotheses<sup>4</sup>. Commonly, one of these constraints is that the only knowledge that is subject to skeptical hazard is a posteriori knowledge. Nevertheless, Beebe (2011) argues that it is possible to construct an argument à la a posteriori skeptical arguments that challenges our a priori knowledge<sup>5</sup>. In this paper, we aim to avoid the empirically and rationally-motivated approaches to a priori skepticism and look at the problem from a *social* epistemic perspective. This means that we are going to propose a *dialectical* approach to a priori skepticism and investigate a possible solution to it. In section 2, we lay down our new approach to a priori skepticism with its two types: namely, Cartesian and Kantian a priori skepticism. Then, in sections 3 and 4, We propose a simple theoretical framework which combines elements from logical conventionalism and inferential contextualism, which we are going to use to offer a *weak transcendental* argument against a priori skepticism. We conclude in section 5.

## 2 A Priori Skepticism

### 2.1 On Dialectical Disagreement

The standard (analytic) account of epistemological skepticism deals with it as an individually subjective and not as social phenomenon. That is why epistemic disagreement was not integrated seriously into the study of skepticism until recently. This was not always the case, as a significant component of Pyrrhonian skepticism was contingent on the notion of epistemic disagreement. For them, it is not just the case that we should suspend belief if there is a form of disagreement about the epistemic state of a subject matter  $X$ . Rather, disagreement is used in a more general sense that might lead to global suspension of belief<sup>6</sup>. This social approach to skepticism about justification/knowledge is fundamentally different from the standard prevailing individualistic approach in the analytic tradition. One main difference between the two approaches is based on the fact that the former is interested in the justification of our beliefs (in the general sense of the word<sup>7</sup>), while the latter is more concerned with knowledge of the external world. Another main difference, which we focus on here, is how the two

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<sup>4</sup>See for instance, Steup (2005) and BonJour (2009).

<sup>5</sup>Our aim here is not to evaluate Beebe's argument as it needs a separate paper to do so. Yet, it is worth noting that Vahid (2013) argues that Beebe's argument does not pose any skeptical threat to first-order a priori knowledge, and that it undermines, at most, second-order a priori knowledge.

<sup>6</sup>(Lammenranta 2011)

<sup>7</sup>See Mates (1996) for more details.

approaches conceive the skeptical problem. On one hand, the individualistic approach formulates it as a skeptical paradox (as mentioned before). On the other hand, the social approach formulates the skeptical problem as an epistemically social problem that stems from the phenomenon of epistemic disagreement. But what do we mean here by *epistemic disagreement*? It is largely acknowledged that there must not be any relevant epistemic asymmetries among the disagreeing parties in order to consider the situation a case of epistemic disagreement. Instead, the relevant disagreement should happen between *epistemic peers*<sup>8</sup>. But what does it take for, say two subjects or more, to be epistemic peers? There are at least two recognized conditions that epistemic peers should satisfy<sup>9</sup>:

- **Evidential equality:** Two subjects (or more) are evidentially equals relative to the question of whether  $P$  when they are equally familiar with the evidence and arguments that bear on the question of whether  $P$ .
- **Cognitive equality:** Two subjects (or more) are cognitively equals relative to the question of whether  $P$  when they are equally competent and reliable in assessing the evidence relevant to the question of whether  $P$ .

In addition, epistemic peers are in a situation of full disclosure if it is the case that:<sup>10</sup>

- **Full disclosure:** Two subjects (or more) are in a situation of full disclosure with respect to the question whether  $P$  when they have knowingly shared with one another all of their relevant evidence and arguments that bear on the question whether  $P$ .

By requiring full disclosure, we can at least guarantee that the disagreeing parties have shared all the relevant evidence concerning the subject matter of disagreement. If they still fail to agree after full disclosure, then we have a case of dialectical disagreement.

- **Dialectical disagreement:** Two subjects (or more) are in a situation of dialectical disagreement if and only if: (1) they share different doxastic attitudes towards  $P$ , (2) they acknowledge themselves as epistemic peers, (3) they are epistemic peers, and (4) they are in a situation of full disclosure.

The way we expressed dialectical disagreement so far as mainly concerned with a specific issue  $P$  belongs to the particular class of *isolated* disagreements. For Kornblith (2010), isolated disagreements are not threatening because they do not force participants to suspend judgments very widely. Alternatively, we are interested here in a wider class of dialectical disagreements, namely the class of systematic dialectical disagreement<sup>11</sup>.

<sup>8</sup>Kelly (2005), Feldman (2006) and Elga (2007).

<sup>9</sup>See, as an example, Christensen (2007) and Lackey (2010).

<sup>10</sup>See Feldman (2006)

<sup>11</sup>We borrowed the notion of systematic disagreement from Goldberg (2013).

- **Systematic dialectical disagreement:** A dialectical disagreement is systematic in case it is (1) non- isolated, (2) prevalent, and (3) persistent.

A dialectical disagreement is non-isolated when the disagreement over  $P$  is a subpart of a larger disagreement over a set of interconnected issues that lead to  $P$ . In addition, a dialectical disagreement is prevalent when the positions of the disagreeing subjects have been endorsed by groups of epistemic peers. Finally, a dialectical disagreement is persistent when the state of disagreement is extended over a large period of time while both sides advance their arguments and counterarguments in front of the new challenges raised from the opposing camp. In this paper, we approach a priori skepticism as a manifestation of systematic dialectical disagreement.

## 2.2 Two Types of A Priori Skepticism

Before proceeding ahead, it will be useful to follow James Conant (2004) in distinguishing between two varieties of skeptical questions: the *Cartesian* and the *Kantian* skeptical questions. The former is concerned with the *knowledge* of  $P$ , while the latter is concerned with the *conditions* of the knowledge of  $P$ . So the Cartesian skeptic is worried about the possibility of knowing  $P$ , while the Kantian skeptic is worried about the possible grounds that can generate the claimed knowledge of  $P$ . If we take the case of Cartesian skepticism about language as an illustrative case, Conant asks: how do I know that my interpretation of  $a$  sign is the *correct* interpretation of the sign? For the skeptic, there will be always an epistemic gap between our interpretation of the sign, and what the sign *really* means. In that way, there is an extra-linguistic epistemic element (viz. an interpretation) that must be added to the string of physical signs in order to outweigh one of the large possibilities of linguistic meaning(s). The question now for the Cartesian skeptic is how can we be sure that the extra-linguistic epistemic element that we picked for  $P$  is the *correct* one. On the other hand, Kantian skepticism about language is concerned with a more fundamental question, namely: what are the necessary conditions for the existence of such extra-linguistic epistemic element(s) for a string of signs to have a meaning? By applying Conant's train of thought to a priori knowledge, we end up with two forms of a priori skepticism: *Cartesian a priori skepticism*, and *Kantian a priori skepticism*.

## 2.3 Cartesian A Priori Skepticism

If we go back to the domain of a posteriori skepticism, we notice that our perceptual experience is not epistemically superior to any radical skeptical hypothesis (e.g. the statement that "I am a brain-in-a-vat"). The reason is that the subject's quotidian experiences are subjectively indistinguishable from her experiences in the brain-in-a-vat

case. In that sense, we can say that a subject’s rational support for her perceptual beliefs is epistemically *underdetermined* by the skeptical hypothesis<sup>12</sup>. A similar argument can be constructed in the case of Cartesian a priori skepticism. Consider the Kripkean example of the *quus* function<sup>13</sup>, when we say that “ $x + y = z$ ” there exists no way to know if “+” means “plus” or “quus”. Consequently, we can say that our knowledge of the true meaning of “+” is underdetermined by the multiplicity of potential interpretations of “+”. This thesis can be formulated as follows:

- **The Epistemic Underdetermination Skeptical Thesis (EUST):** When faced with  $n$  interpretations of an a priori sentence  $P$ , there exists no method to *know* which interpretation is the correct one.

In that sense, we have a case of systematic dialectical disagreement regarding knowing which interpretation of  $P$  is the correct one. When thinking more about *EUST*, it becomes tempting to ask: why is Cartesian a priori skepticism possible at all? Is it the case that Cartesian a priori skepticism is merely an illusory form of epistemic disagreement over the interpretation of a given  $P$ ? Or is it the case that these epistemic disagreements are more genuine and fundamental? In the next part, we defend a *strong* reading of *EUST* by proposing that Cartesian a priori skepticism is a fundamental epistemic problem that is rooted in a linguistic phenomenon, namely *the open-texture* of language.

An argument for *EUST* can be traced to Friedrich Waismann’s (1945) notion of *open-texture*. Originally, Waismann used open-texture to refute the doctrine of verificationism. For him, there exists no set of rules that can govern the use of empirical propositions in all possible situations. In other words, there exists nothing in the established use (or the non-linguistic facts) of an empirical proposition  $P$  that dictates the correct usage of  $P$  in future scenarios<sup>14</sup>. In a Possible Worlds notation, a proposition  $P$  is open-textured if there exists at least one possible world where the application of  $P$  is indeterminate<sup>15</sup>. The phenomenon of open-texture is a serious epistemic problem disguised in a semantic form. After all, terms are introduced to be applied for spe-

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<sup>12</sup>Pritchard (2016)

<sup>13</sup>Quus is defined as in Kripke (1982)

<sup>14</sup>Waismann’s notion of open texture is a mere extension of Wittgenstein’s ideas about rule-following for empirical propositions. Waismann (1945) writes:

Suppose I have to verify a statement such as ‘There is a cat next door’; suppose I go over to the next room, open the door, look into it and actually see a cat. Is this enough to prove my statement?... What... should I say when that creature later on grew to a gigantic size? Or if it showed some queer behavior usually not to be found with cats, say, if, under certain conditions it could be revived from death whereas normal cats could not? Shall I, in such a case, say that a new species has come into being? Or that it was a cat with extraordinary properties?... The fact that in many cases there is no such thing as a conclusive verification is connected to the fact that most of our empirical concepts are not delimited in all possible directions. (121–2)

<sup>15</sup>See Margalit (1979) for more discussion.

cific objects, and to exclude other objects. Yet, Waismann argues that such simple requirement fails even for natural kind terms<sup>16</sup>

The relevant question now is: can logical/mathematical expressions be open-textured, too? After all, logical/mathematical expressions are precisely defined without any chance of ambiguity. Interestingly, Shapiro (2006) argues that this not the case. He gives many examples of mathematical and logical notions that we might take for granted as rigorously defined without ambiguity, and shows that our intuition is wrong. For example, the foundational concept of a “number” is a subject of philosophical dispute. Similarly, the elementary notion (at least in computational mathematics) of “computable function” is subject to open-texture, too. In set theory, George Boolos (1989) argues that the notion of a “set” in ZC is not unique; rather it combines a fuzzy mixture between two notions. Moving to logic, Shapiro rightly argues that logical connectives, if studied without explicit stipulations or conversational context, are subject to open-texture. Connectives like “and”, “or”, “there exists” are completely subject to open-ended interpretations according to differentiated contexts. One objection to the open-texture analysis of logical/mathematical propositions is that it is inconceivable for some terms like a “prime natural number” to be subject to novel interpretations. Truly, *EUST* does not imply that *all* logical/mathematical notions are subject to open-texture; yet it is a laborious task to find the a priori notions that are *not* subject to it.

## 2.4 Kantian A Priori Skepticism

The Kantian a priori skeptical argument proceeds by asking: what is/are the meta-epistemic condition(s) required for a proposition *P* in order to be a priori? The Kantian skeptic notices that the two classical criteria proposed, at least since Kant’s time, are *necessity* and *universality*<sup>17</sup>. Yet, the Kantian skeptic sees that these two criteria fail to act as successful meta-epistemic conditions for a priori knowledge. On one hand, necessity fails as a condition mainly due to Kripke’s (1971, 1980) convincing distinction between the nature of necessary propositions as belonging to the metaphysical realm, and the nature of a priori propositions as belonging to the epistemological realm. On the other hand, universality can be interpreted from a reliabilist framework as suggested by Kitcher (1983). In that sense, a reliable process that produces *universal* a priori knowledge must satisfy the following conditions: i) it must be accessible independently

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<sup>16</sup>“The notion of gold seems to be defined with absolute precision, say by the spectrum of gold with its characteristic lines. Now what would you say if a substance was discovered that looked like gold, satisfied all the chemical tests for gold, whilst it emitted a new sort of radiation? ‘But such things do not happen.’ Quite so; but they might happen, and that is enough to show that we can never exclude altogether the possibility of some unforeseen situation arising in which we shall have to modify our definition . . . In short, it is not possible to define a concept like gold with absolute precision; i.e., in such a way that every nook and cranny is blocked against entry of doubt. That is what is meant by the open texture of a concept.” (Waismann 1945, 122–3)

<sup>17</sup>See for example, section B3 of Kant’s *Critique of Pure Reason*.

of experience, ii) it must produce (experience-independent) warranted beliefs, and (iii) it must produce (experience-independent) true beliefs. If these conditions are satisfied, then a subject can assure the existence of a warranted process that generates true beliefs even in counterfactual situations. This account of universality rules out the possibility of having fallible or defeasible a priori knowledge. The backdrop of Kitcher’s analysis of a priori knowledge can be cashed out in his *unrevisability thesis* (UT)<sup>18</sup>. Casullo (1988) defines UT as follows<sup>19</sup>:

- **Universality Thesis (UT):** If subject *S* is justified in believing that *P* a priori, then *P* is rationally *unrevisable* in light of any *future* evidence.

Then, Casullo presents Mary’s thought experiment to undermine UT. Suppose Mary is a well-trained logic student who can discern between valid and invalid inferences. At time *t*, Mary is convinced that (a) “‘ $P \rightarrow Q$ ’ entails ‘ $\neg P \rightarrow \neg Q$ ’” is a valid inference. Nevertheless, after time *t*, Mary realized upon reflection that her belief was wrong, and she formed a new belief that (b) “‘ $P \rightarrow Q$ ’ entails ‘ $\neg Q \rightarrow \neg P$ ’” instead. The question now is whether Mary’s knowledge of (a) can be considered a priori? Casullo’s response is yes. His argument is that (a) was justified by a reliable process despite the fact that (a) is false. The flaw of UT, for Casullo, is that it confuses between the *strength* and the *nature* of justification. So despite the fact that Mary’s justification for (a) is based on an error, this is by itself does not rule out its a priority as it overlooks the “fact that revision can take place on the basis of a priori considerations<sup>20</sup>”. Thus, a justification process cannot be judged as *not* a priori based on the fact that this process is defeasible and/or self-correcting<sup>21</sup>.

The problem with Casullo’s argument is that it is based on an *intraindividual* conception of the process a priori justification. It follows then that his understanding of defeasibility takes the form of an error-based defeasibility where the subject is discovering the errors of her own claims (or the errors of the others’ claims). Yet, this understanding can only act as a paradigm case which has little power to undercut UT. The reason is that, historically speaking, the notion of a defeasible/self-correcting process regarding a priori claims (e.g. logical claims) has been an extraindividual dialectical process that was conditioned by extra-logical factors (including empirical ones). For instance, Priest (2014) distinguishes between three senses of the word ‘Logic’: *logica docens*, *logica utens*, and *logica ens*<sup>22</sup>. First, *logica docens* is logic as claimed by logi-

<sup>18</sup>This position regarding the universality of a priori knowledge was also defended by Putnam (1983).

<sup>19</sup>In fact, Casullo distinguishes between two versions of UT, a strong one and a weak one. The version mentioned above is the strong one, while the weak one is defined as follows: If *S* is justified in believing that *p* a priori then *p* is rationally unrevisable in light of any future experiential evidence. Here we are only interested in the strong version as it trivially implies the weak one.

<sup>20</sup>Casullo’s (1988), 193.

<sup>21</sup>See also Field (1998) for a defense of the possibility of defeasible a priori claims.

<sup>22</sup>Given this classification, we are only interested in *logica docens* as it represents the epistemic aspect of logic as opposed to its practical or metaphysical aspects.



cians (i.e. what logicians teach about logic in their textbooks). Second, *logica utens* is logic as practiced, for reasoning, by people. Finally, *logica ens* is logic in-itself (i.e. what is the real metaphysical notion of validity?, and so on). Priest maintains that it is not only possible for *logica docens* to be revised, but it was *de facto* revised<sup>23</sup>. Priest stresses that the process of revising *logica docens* was not a mere extension of logical systems over a continuum. For example, the Darapti – which is a valid Aristotelian syllogism – cannot be validated within first-order logic<sup>24</sup>. Moreover, it cannot be validated within first-order logic without debunking other principles of Aristotelian logic. In addition, other philosophers such as Birkhoff and von Neumann (1936), and Putnam (1979) argue that it is plausible to revise logical principles (or rules) due to empirical considerations. But aside from these empirical motivations, what are the non a priori extra-logical factors that can motivate the revisability of logical principles (or rules) in an extraindividual dialectical manner? Bueno and Colyvan (2004) adopt a “theory change” model that was developed by Laudan (1984) to explain changes in scientific theories. For Bueno and Colyvan, the basic idea is that at any given point in time there are common core assumptions that are shared by the logical/philosophical community, which can be represented in three groups: (i) shared logical theories (i.e. logical principles and rules), (ii) shared views about the aims of logic, and (iii) shared methodological principles (i.e. shared metalogical principles). Usually, the logical/philosophical community shares at least one of these sets, which can be used to debate the other sets. If this view is correct, then Casullo’s intraindividual criticism of UT (which is the most prominent criticism of UT) is not accurate to say the least. Thus, it is fair for the Kantian skeptic to think of UT as an acceptable necessary condition for a priori knowledge. This leaves her in a strong position by deflating the two available meta-epistemic conditions for a priori knowledge: necessity and universality.

### 3 Rethinking A Priori Skepticism

This section provides a simple theoretical framework which combines elements from *inferential contextualism* and *logical conventionalism* that we are going to use to rethink the problem of a priori skepticism. The basic idea is to propose an epistemological view

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<sup>23</sup>“At any rate, one needs only a passing acquaintance with logic texts in the history of Western logic to see that the *logica docens* was quite different in the various periods. The differences between the contents of Aristotle’s *Analytics*, Paul of Venice’s *Logica Magna*, the Port Royale *Logic*, or the *Art of Thinking*, Kant’s Jäsche *Logik*, and Hilbert and Ackermann’s *Principles of Mathematical Logic* would strike even the most casual observer. It is sometimes suggested that, periods of oblivion aside, the development of logic was cumulative. That is: something once accepted, was never rejected. Like the corresponding view in science, this is just plain false.” (213)

<sup>24</sup>“But it might well be suggested that the adoption of classical logic did not revise Aristotelian logic in any interesting sense: Aristotelian logic was perfectly correct as far as it went; it was just incomplete. Classical logic simply extended it to a more complete theory. Such a suggestion would be false. It is a well-known fact, often ignored by philosophers (though not, perhaps, historians of philosophy) that Aristotelian logic is incompatible with classical logic in just the same way that non-Euclidean geometries are incompatible with Euclidean geometry.” (2006, 164 -165)

of logic that is derived from inferential contextualism and combine it with a conventionalist metaphysical view of logic to open the possibility for a form of pluralism regarding the nature of the logical enterprise.

### 3.1 Inferential Contextualism

In recent decades, contextualist approaches to epistemic problems have gained special prominence. Particularly, they have been used to target a posteriori skepticism. Yet, the term “contextualism” has been used as an umbrella term for a large group of views about the nature of knowledge (and epistemic justification). To put things loosely, the basic common thesis is that the truth-value of knowledge (and epistemic justification) ascription is context-dependent. Pritchard (2002) classifies epistemic contextual theories into two genres: The first one is *semantic contextualism* which is the view that truth-value of a proposition like “*S* knows that *P*” is dependent on some features of the conversational context in which such a proposition was uttered. The second genre is *inferential contextualism* as found in the work of Michael Williams (1991), which we are going to focus on for reasons described later<sup>25</sup>. Williams’s version is characterized by three main features: 1) It is subject-based contextualism which means the standards that *S* should meet in order to know *P* are determined by the context of *S*. 2) The context of *S* is mainly determined by its inferential structure (which in turn depends on *S*’s practical interests and his background knowledge). 3) It rejects the idea that epistemic standards can be anchored by a fixed scale that is context-independent. Hence, the difference between quotidian and skeptical contexts, according to inferential contextualism, does not lie in the different epistemic standards imposed by the skeptic on each of these contexts<sup>26</sup>; rather, it lies in the subject matter that the skeptic is investigating. In the latter case, the skeptic is no longer studying ordinary knowledge, but knowledge *as such*<sup>27</sup>. In that way, inferential contextualism rejects the customary *totality condition* which states that all our beliefs can be rationally evaluated at once<sup>28</sup>. To the contrary, Williams thinks that for each domain of inquiry there are some “methodological necessities” which act as reference points for rationally evaluating our beliefs, but these methodological necessities are not *themselves* subject to rational evaluation<sup>29</sup>. If these methodological necessities shift from one epistemic context to another, then there are no epistemically prior methodological necessities, which is the case for Williams.

What is interesting for us here is that Williams’ understanding of inferential contextualism is based on a dialectical form, which Grundmann (2004) refers to as Williams’

<sup>25</sup>As found in the work of David Lewis (1996), Stewart Cohen (1988), and Keith DeRose (1995).

<sup>26</sup>As claimed by semantic contextualism.

<sup>27</sup>In other words, “the skeptic doesn’t just raise the standards of knowledge but completely changes the subject” (Brendel and Jäger 2004)

<sup>28</sup>Williams (1991, 90)

<sup>29</sup>Pritchard (2002) notes that Williams’ thesis is explicitly based on the Wittgensteinian notion of hinge propositions.

“default and challenge” model of justification and knowledge. This model can be reformulated as a sequential game between a proponent and an opponent in a given context with specified methodological necessities (MN):

- The proponent is entitled to hold a belief  $p$  (which is consistent with the given MN) in case the opponent does not justifiably challenge it.
- If the opponent challenges the validity of  $p$ , the proponent has to state the evidence that supports  $p$  (and rebuts the opponent’s challenge). If not, the proponent loses his entitlement in believing  $p$ .

Williams thinks that these MN set up the direction of inquiry in each context as they specify the inferential status of each belief/proposition in that context (i.e. is it a basic non-inferential belief/proposition or not?). So, for history scholars, for instance, one has to reject the Russellian hypothesis that earth came into existence five minutes ago and accept the authenticity of historical records as a methodological necessity for historical inquiry (which indicate that earth, surely, existed more than 5 minutes ago). If one starts accepting the Russellian hypothesis, then she is no longer engaged in the domain of inquiry called history, rather she is doing epistemology.

This kind of understanding of contextualism leads to a form of relativism about knowledge, which might end up assigning the same epistemological status to astronomy and to astrology. Yet, Williams does not accept this kind of relativistic implication as he states we should not think of “contexts of justification as insulated from external criticism<sup>30</sup>.” The way he cashes out this thought is by requiring an externalist understanding of the conditions of justification to be in act. Thus, it is not enough for a belief  $p$  to be justified to remain dialectically unchallenged in the sequential game; it has to be reliably formed in an “objective” way. This is the way through which Williams refrains from the alleged relativistic conclusions of his inferential contextualism<sup>31</sup>.

Williams’ inferential contextualism can be applied to a priori knowledge as well. So, for instance, we can think of different inferential structures and methodological necessities (say, paraconsistent v.s. classical logical structures) where the truth-value of some logical propositions shifts when we move between contexts. Does this imply that all a priori inferential structures are equally (epistemically) justified? The answer is *no*. The reason is we think that there are inferential contexts that were formed in more *dialectically reliable* ways than others, and this is the subject of our next section.

### 3.2 Logical Conventionalism

Conventionalism is, briefly speaking, the thesis that some truths (e.g. logical and

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<sup>30</sup>(Williams, 2001, p. 227).

<sup>31</sup>Grundmann (2004) argues that Williams anti-relativistic position clashes with his commitment to the epistemological anti-realistic nature of inferential contextualism.

mathematical truths) are true by convention or in virtue of meaning. This thesis gained momentum due to the support of logical positivists, especially Carnap (1934), but failed to keep its status after that<sup>32</sup>. Logical conventionalism can be defined as follows:

- **Logical Conventionalism:** given a logical system  $L$ , for any logically true sentence  $a$  in  $L$ , our linguistic conventions  $C$  fully explain why  $a$  is true<sup>33</sup>.

Two versions of logical conventionalism need to be distinguished. The first is *explicit* conventionalism where logical truths are roughly understood as a series of explicit linguistic stipulations concerning these truths. Quine (1936) presents a Carrollesque regress argument to show the implausibility of this form of conventionalism<sup>34</sup>. His criticism is generally accepted by many contemporary philosophers as a knockdown argument against explicit conventionalism<sup>35</sup>. Notwithstanding, there is another version of logical conventionalism that Quine was aware of and also criticized, namely *implicit* conventionalism. The primary idea of implicit conventionalism is that logical truths can be fully explained by the implicitly followed rules governing the use of logical connectives. Quine also attacks this line of reasoning since we cannot distinguish between specific behaviors that act according to these implicit rules and those which do not. More specifically, Quine's first criticism is that we cannot infer any general implicit rule by mere observation as this allows for a large space of conventions that can explain the same set of rule-following behavior depending on how we conceive these conventions to be violated. A second issue for Quine is that implicit conventionalism risks being reduced to mere behavioristic statements that are firmly accepted, and hence conventionalism becomes an empty label with no explanatory power whatsoever. Despite Quine's criticisms, implicit conventionalism is alive and kicking<sup>36</sup>, and here we propose another defense of implicit conventionalism that is motivated from a dialogical perspective<sup>37</sup>.

Interestingly, historical logic was certainly tied to dialectical practices to the extent that Lloyd (1996) claims the emergence of the deductive method of logic was condi-

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<sup>32</sup>For an elaborate account of the history of conventionalism from Poincaré to Quine, see Ben-Menahem (2006).

<sup>33</sup>Warren (2016).

<sup>34</sup>Other arguments, which are different from the Quineian spirit, against logical conventionalism can be found in Yablo (1992), Boghossian (1996), and Sider (2003). See also Warren (2015) for a consistent defense of logical conventionalism against these attacks.

<sup>35</sup>For instance, Scott Soames (2005) writes: "This, in a nutshell, was one of the central arguments of Quine's paper, "Truth by Convention," . . . Although not fully appreciated right away, it eventually became a classic, and is now widely known for its powerful critique of the program of grounding a priori knowledge in knowledge of meaning" (p.265)

Also, Paul Boghossian expresses the same thought: "In his classic early writings on analyticity - in particular, in "Truth by Convention," "Two Dogmas of Empiricism," and "Carnap and Logical Truth" - Quine showed that there can be no distinction between sentences that are true purely by virtue of their meaning and those that are not. In so doing, Quine devastated the philosophical programs that depend upon a notion of analyticity- specifically, the linguistic theory of necessary truth." (p.360)

<sup>36</sup>See Azzouni (2014) and Warren (2015) for an extensive defense of this position

<sup>37</sup>We do not aim here to lay down a full-blooded defense of logical conventionalism as it is a tremendous task that certainly goes beyond our limited scope. We just aim to sketch a brief strategy about how to conceive implicit conventionalism from a dialogical aspect.

tioned by the Greek sociocultural structure, especially their practice of debating<sup>38</sup>. To illustrate, Hintikka (1995, 1997) argues that Aristotle’s ideas about logic were shaped by his ideas on dialectic which is, for Hintikka, a dialogical game in the strict sense (viz. starts with a status quo position, players can depart from the status quo position by making rule-governed moves, etc<sup>39</sup>). This historical connection between logic and dialogical practices can also be found in other philosophical traditions like the Islamic tradition<sup>40</sup>, and is also present in medieval logic<sup>41</sup>. Nevertheless, Novaes (2015) correctly points that this dialogical import of logic was forgotten (or rejected) due to the Cartesian discovery of *subjective* logic, which meant logic should be mainly thought of as *normative* for *individual thinking* and not for argumentation.

Based on the previous historical analysis, and if we take the dialogical origins of logic seriously, then we can construct a dialectical story about the development of implicit logical conventionalism. The story frames implicit logical conventionalism as a process of *reflective equilibrium* where the following stages take place:

- **Stage 1:** Let  $S$  be the set of all relevant subjects,  $P$  the set of all relevant logical propositions, and  $B_{sp}$  the set of all initial beliefs of  $S$  about  $P$ . We can think of  $B_{sp}$  as contextualized by exogenous conditions like history, language, culture, educational institutions, and others. Then, we have the  $n$ -tuple  $C(S, P, B_{sp})$  as the set of all conventional claims concerning  $B_{sp}$ .
- **Stage 2:** Let  $T$  be the set of all theoretical principals used to systematize  $B_{sp}$ , and  $TB$  be the set of all background theories adopted by  $S$  when reasoning about  $T$ . Then, we have the  $n$ -tuple  $C(S, P, TB, T)$  as the set of all conventional claims concerning  $T$ .
- **Stage 3:** Probably, there will be a form of *outer* incoherence between  $C(S, P, B_{sp})$  and  $C(S, P, TB, T)$ , or even an inner incoherence in  $C(S, P, B_{sp})$  or in  $C(S, P, TB, T)$ . The goal of  $S$  is to follow a *Maxmin* strategy towards these outer/inner inconsistencies.
- **Stage 4:** The final state resulting from this procedure is called *Wide Reflective Equilibrium*, *WRE* [ $C(S, P, B_{sp})$ ,  $C(S, P, TB, T)$ ].

This process can be repeated in case of a new generated set  $B_{sp}^*$  due to changes in the relevant exogenous conditions. If this argument works, then we have a plausible explanation (that avoids Quine’s criticisms) for the emergence of implicit logical conventions, which is what we need to complete our argument against a priori skepticism.

<sup>38</sup>See also Castelnerac and Marion (2009) for more on this point.

<sup>39</sup>See Lorenzen and Lorenz (1978) for another formulation of these dialogical games.

<sup>40</sup>As found in Rahman and Iqbal (2018).

<sup>41</sup>Stump (1989).

### 3.3 Contextual-Conventionalism

Now, we are going to compile inferential contextualism with logical conventionalism as two complementary theses regarding the nature of logic. We start by defining our main notations: let the set of knowing subjects<sup>42</sup> be  $S : s_1, s_2, \dots, s_n$ , and the set of known logical propositions for subject  $s_i$  be  $P : p_1, p_2, \dots, p_m$ . Similarly, we can define the set of all possible times as  $T : t_1, t_2, \dots, t_l$ . Also, the set of all possible contexts is denoted by  $C = c_1, c_2, \dots, c_v$ ; note that  $C$  denotes only the contexts which are *epistemically relevant* to the knowing subject. Finally, we define the set of all possible conventions by  $Co = co_1, co_2, \dots, co_y$ . Now take the ordered  $n$ -tuple  $K(s_n, p_m, t_l, c_v, co_y)$  to denote that subject  $s_n$  knows proposition  $p_m$  at time  $t_l$  given a specified context  $c_v$  and a specified convention  $co_y$ <sup>43</sup>. Given our framework, the last two parameters— $c_v$  and  $co_y$ —are the most decisive variables in judging the epistemic status of a logical proposition  $p_m$ . By changing the context  $c_v$ , the convention formed  $co_y$  might change, and consequently the epistemic status of  $p_m$  might vary, too. To see this, contrast the utterance of the following two statements:

- $K(s_1, p_1, t_1, c_1, co_1)$ .
- $\neg K(s_1, p_1, t_1, c_2, co_2)$ .

Given  $t_1$ ,  $c_1$  and  $co_1$ , subject  $s_1$  *knows*  $p_1$ . While given  $t_1$ ,  $c_2$  and  $co_2$ , the same subject  $s_1$  does *not* know the same proposition  $p_1$ . This synthesis between inferential contextualism (as an epistemological view of logic) and logical conventionalism (as a metaphysical view of logic) allows us to construct a *pluralistic* view about the nature of logic as a deductive inferential mode of reasoning. In that sense, we can have different *Logics* depending on the adopted conventions and the context of inference. As Shapiro (2014) puts it when defending logical pluralism:

Whether we say that the logical terms have the same meaning, or different meanings, in the different structures or theories, depends on what is salient in a conversation comparing the structures or theories. For some purposes—in some conversational situations—it makes sense to say that the classical connectives and quantifiers have different meanings than their counterparts in intuitionistic, paraconsistent, quantum, etc. systems. In other situations, it makes sense to say that the meaning of the logical terminology is the same in the different systems. (128)

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<sup>42</sup>Knowing subjects are treated in first person, and not as third person attributions.

<sup>43</sup>Similar descriptions can be used for other epistemic notions like ‘justification’. In that case, take the ordered  $n$ -tuple  $J(s_n, p_m, t_l, c_v, co_y)$  to denote that subject  $s_n$  is justified to belief proposition  $p_m$  at time  $t_l$  given a specified context  $c_v$  and a specified convention  $co_y$ .

## 4 A Transcendental Argument against A Priori Skepticism

In this section, we propose a *weak transcendental* argument<sup>44</sup> against a priori skepticism with its twofold structures: Cartesian and Kantian. Stern (2007) identifies two significant features of transcendental arguments: a) They have a self-evident starting point  $Y$  that the skeptic is expected to accept (e.g. that we have specific undeniable subjective experiences), and b) show that for  $Y$  to obtain there has to exist a necessary condition  $X$ , that is doubted by the skeptic, and therefore rebut the skeptical argument against  $X$ <sup>45</sup>. We call this type of argument a *strong* transcendental argument. As opposed to this type, we propose a *weak* transcendental argument as a plausible response to a priori skepticism. The weak version differs from the strong version in the following: a) The starting point is not self-evident, yet it is a plausible view about  $Y$  that the skeptic *can* accept, and b)  $X$  is a *sufficient* condition for  $Y$  to obtain. Granting this, let us proceed with the details of the argument by defining two types of *contextual-conventionalism*.

Given a specific framework (e.g. a framework of propositions, a framework of real numbers, etc.), Carnap (1950) distinguishes between two classes of ontological questions: *internal* and *external* questions. Internal questions are those questions asked concerning the ontological status of some entities *within* a framework. Conversely, external questions are those asked concerning the ontological status of a framework as a *whole*. In a similar spirit, contextual-conventionalism can be divided into two general categories: *internal* and *external* contextual-conventions. The main difference between internal and external contextual-conventions is that in the former the truth value of a specified  $P$  does not shift when changing the *context* (and fixing the language), while in the latter the truth value of a specified  $P$  does not shift when changing the *language* itself. More specifically,

- **Internal contextual-convention:** For any language  $L$  and a context  $c_v$ , we say that there is an internal contextual-convention in  $L$  if it is the case that all theorems  $T_n$  in  $(L, c_1)$  can be obtained, *salva veritate*, given another context  $(L, c_2)$ .

As an example, we can see this by examining the notion of logical validity in classical logic. Beall and Restall (2006) generalize the Tarskian validity notion as follows:

- **Generalized Tarski Thesis:** An argument is valid <sub>$x$</sub>  if and only if, in every case <sub>$x$</sub>  in which the premises are true, so is the conclusion.

<sup>44</sup>Transcendental arguments as an anti-skeptical strategy have a long history in philosophy. Prominent examples include Aristotle's elenctic response to those who are skeptical of the law of non-contradiction, Descartes's argument for the *cogito*, Kant's transcendental deduction of the categories, Putnam's argument against external world skepticism, and Davidson's argument against skepticism of other minds.

<sup>45</sup>There is a huge debate which started by Stoud's (1968) criticism against the strategy of transcendental arguments. He basically claimed that all a transcendental argument can show is that we must *believe* that  $X$  is necessary for  $Y$  (or it *appears* to us that  $X$  is necessary for  $Y$ ), without having the necessity relation being actually true. Nevertheless, I will abstain from engaging in this debate here as the structure of the transcendental argument proposed here is different from the one that Stroud is attacking.

Then Beall and Restall argue that all results of classical logic (our  $L$ ) can be obtained given two different cases of validity: one is the *possible worlds* case, the other is the *Tarskian model case*. We take Beall and Restall’s notion of cases to be an expression of different contexts  $c_1$  and  $c_2$ . In that way, we can see that there is an internal contextual-convention in classical logic about the notion of validity between the possible worlds context and the Tarskian model context. On the contrary, a lack of internal convention can be found in Sambin (2011) and DeVidi’s (2012) discussions of the notion of “function” in constructive mathematics. Their argument is that we can find two inconsistent, yet correct, understanding of functions in the language of constructive mathematics. The first is the *computational* understanding, which identifies a function as a series of computational instructions. The second is the geometric understanding, which identifies a function by its *behavior*<sup>46</sup>. Therefore, we have a case in which two different contextual treatments of the notion of the function (i.e. the computational and the geometric) within the same language (of constructive mathematics) are lacking any internal convention about the truth-value of their output theorems.

External contextual-conventions can be differently defined as follows:

- **External contextual-convention:** For any languages  $L_1, L_2$  and contexts  $c_1, c_2$ , we say that there is an external contextual-convention between  $L_1$  and  $L_2$  if it is the case that all theorems  $T_n$  in  $(L_1, c_1)$  can be obtained, *salva veritate*, given another language and context  $(L_2, c_2)$ .

External contextual-conventions can be thought of as *metaconventions*. In other words, we have an external contextual-convention in case we have a convention about how we should form our conventions in a diverse range of possible languages and contexts. As an example, Gödel (1969) and Tarski (1948) showed that any intuitionistic logic-based language (viz.  $(L_1, c_1)$ ) can be *translated* into a classical language supplemented with modal operators (viz.  $(L_2, c_2)$ ), in this case we have an external contextual-convention between  $(L_1, c_1)$  and  $(L_2, c_2)$ . Conversely, an example of the *lack* of external contextual-conventionalism can be found in a branch of mathematics called smooth infinitesimal analysis as compared to classical analysis. In smooth infinitesimal analysis there is an infinitesimal (number) nilsquare  $\varepsilon$  that behaves in a non-classical way<sup>47</sup>. This seeming contradiction can be worked out by relying on intuitionistic logic (i.e. denying the law of excluded middle<sup>48</sup>). By shifting the context from classical analysis to smooth infinitesimal analysis, there was a meaning-shift of concepts like “not”, “for

<sup>46</sup>The two approaches are different in a significant way as the computational approach treats a version of the axiom of choice as a logical principle, while the geometric approach denies that possibility.

<sup>47</sup>On one hand, not every nilsquare is identical to zero:  $\neg(\forall\varepsilon) (\varepsilon^2 = 0 \rightarrow \varepsilon = 0)$ . On the other hand, it is not the case that there exists another nilsquare that is different from zero:  $(\forall\varepsilon) (\varepsilon^2 = 0 \rightarrow (\neg(\varepsilon \neq 0)))$ .

<sup>48</sup>See Shapiro (2014) and Hellman (2006).



all” and even “identity”. In that way, “there exists another nilsquare that is different from zero” does not follow from the case that “not every nilsquare is identical to zero”.

Given the aforementioned conceptual schemes, we can claim now the following:

- **Claim 1:** We have a weak transcendental solution to Cartesian A Priori Skepticism in case we have an internal-contextual convention.
- **Claim 2:** We have a weak transcendental solution to Kantian A Priori Skepticism in case we have an external-contextual convention.

The reason behind these claims is that if we have an internal-contextual convention, then there is an agreement on the truth value of  $P$ , even if there is a disagreement over the relevant interpretation (or context) of  $P$ , which is sufficient to refute the Cartesian skeptic. Likewise, if we have an external-contextual convention, then we have an agreement on the truth value of  $P$ , even if we change the language and context used to express  $P$ . This simply means that we can construct a wide-ranging agreement on the preconditions<sup>49</sup> of the truth value of  $P$ , which is sufficient to counter the Kantian skeptic.

## 5 Agreeing to Disagree: The Philosophers’ Case

So far, we proposed a twofold skeptical problem, which we labeled a priori skepticism as it casts our concern over the epistemic validity of the whole deductive enterprise. All being well, contextual-conventionalism offers a weak transcendental solution to our epistemic angst. Interestingly, the core insight of the contextual-conventionalist solution was mentioned at the beginning of the conversation between Achilles and the tortoise in Carroll (1895):

–“So you’ve got to the end of our race-course?” said the Tortoise. “Even though it does consist of an infinite series of distances? I thought some wiseacre or other had proved that the thing couldn’t be done?”

–“It can be done,” said Achilles. “It has been done! *Solvitur ambulando*. You see the distances were constantly diminishing; and so—” (278)

Here, Achilles seems to stumble upon an *easy* rebuttal of the tortoise’s theoretical reasoning: *solvitur ambulando* (viz. the problem of finishing the race is *solved by walking*). If both Achilles and the tortoise *agree* that the former succeeded in ending the race-course, then Achilles surpassed the challenge. Nevertheless, if the tortoise has a good reason to be convinced that Achilles did not finish the race, then Achilles’ *solvitur-ambulando* response will not work. To see this, we have to think of the conversation from

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<sup>49</sup>These preconditions do not have a specific essence as there are subject to contextual-conventional formation.

a contextual-conventional perspective. Given the conversational context of Achilles and the tortoise, the disagreement stems from the absence of any convention between Achilles and the tortoise on what exactly does it mean to “finish the race”. On one hand, the tortoise is seeking a *theory-based* solution. On the other hand, Achilles accepts an *action-based* solution. We call this: a situation of *absence* of an external contextual-convention.

In this sense, a priori skepticism is the product of a genuine *prior* disagreement about the choice of a conventional language in a specified context. This is a more radical disagreement from modest disagreements about which methods/rules/axioms we should adopt within any specific framework. Shapiro (2014) thinks that this radical disagreement is a kind of *intrinsic* feature of our subjective epistemic structure when thinking about logic in general:

There is no consensus concerning how logical terms, when used in the wild, get the meanings they have (if, indeed, they have determinate meanings). Indeed, there is no consensus on what meaning is, even when attention is focused on so called logical terminology. (127)

In short, the way to eliminate a priori skepticism is by blocking any *absence* of *external* contextual convention(s). Whether this is a *feasible* goal or not is a different question beyond the scope of this paper.

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