

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 it is possible to be skeptical about a priori knowledge). Our argument is based on two types of a priori skepticism: Cartesian and Kantian. The former questions the possibility of knowing a priori propositions (viz. logical and mathematical propositions), while the latter challenges the soundness of the proposed epistemic conditions for a priori knowledge. Then, we propose a specific understanding of a priori propositions that combines elements from inferential contextualism and logical conventionalism to offer a weak transcendental argument against a priori skepticism.

1 Introduction

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). A priori knowledge is defined as knowledge of a priori propositions. In this essay, we take category (1) of Audi’s classification as a paradigm case for a priori propositions. Hence, “a priori knowledge” is used to *solely* indicate knowledge of “logical and mathematical” propositions. That said, we can define our central concept:

- **A Priori Skepticism:** is the thesis that it is *possible* to be skeptical about a priori knowledge.

One can fairly say that a priori skepticism¹ is not well investigated in skepticism studies, and this for some good reasons. One of these rationales is that it is difficult to conceive the possibility of a priori skepticism due to Putnam’s centrality argument, which basically says that it is hard to doubt the laws of logic because they are presupposed by “so much of the activity of argument itself that it is no wonder that we cannot

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¹This term is used as opposed to a posteriori skepticism, which is concerned with external-world skepticism.

envisage their being overthrown [. . .] by rational argument²”. Some philosophers take the centrality argument as decisive against a priori skepticism³. Nevertheless, a priori skepticism can still 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, revised for empirical considerations (e.g. Quantum mechanics’ experimental results). Recently, and contra the aforementioned *empirically* motivated to a priori skepticism, Beebe (2011) presents a *rational* approach to a priori skepticism. He primarily argues that it is possible to construct a syllogistic argument— à la external-world skeptical arguments— that challenges the alleged priori knowledge⁴. In this paper, we propose a third approach to conceive a priori skepticism, namely from a *dialectical* perspective. But before proceeding, let us first discuss the notion of epistemic justification. Initially, the received (analytic) views about epistemic justification (e.g. reliabilism and evidentialism) are essentially individualistic ones. This led to the general understanding that epistemic disagreement has no skeptical significance whatsoever since social aspects are irrelevant to justification. Nonetheless, there is merit to the intuition that disagreement among epistemic peers⁵ around whether *P* *should* undermine their beliefs about their justifications for whether *P*. Yet, Lammenranta (2011) points out that the individualist account of justification cannot explain this intuition⁶, and he suggests that we should conceive epistemic justification as a *dialectical* process. Wieland (2013) defines dialectical justification as follows:

- **Dialectical justification:** *S* is (dialectically) justified in believing *P* only if *S* can defend *P* to (possible) opponents⁷ in a non-question begging way.

For Lammenranta, dialectical justification can explain our intuitions about why disagreement can lead to epistemic skepticism. The reason is that we are now required

²Putnam (1983, 110)

³Steup (2005) writes: “There is skepticism about knowledge of the external world, other minds, and the past. Skepticism about a priori propositions, however, is rarely pursued. Indeed, considering that knowledge of a priori propositions includes knowledge of the laws of logic, and more specifically, knowledge of an argument’s validity, it is hard to see how a skeptical argument for anything could get off the ground without the prior assumption that knowledge of a priori propositions is indeed possible” (pp. 10–11)

⁴Our 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 claim does not pose any skeptical threat to first-order a priori knowledge, and that it undermines, at most, second-order a priori knowledge.

⁵Christensen (2007) and Lackey (2010) recognize two conditions for epistemic peers: *evidential* equality and *cognitive* equality.

⁶In short, he basically thinks that the individualist epistemic justification account cannot explain the significance of epistemic disagreement because the disagreeing parties will always have *asymmetric* access to the beliefs of their opponents, and hence will not be able to assess their credence. For instance, consider the case where there is perceptual disagreement between S_1 and S_2 about whether *P*. Although both subjects acknowledge each other as epistemic peers, each subject has access only to his/her perceptual evidence, and hence cannot check the validity of the other’s evidence. There are possible objections to this analysis, yet a full examination of Lammenranta’s argument is beyond the scope of this paper.

⁷These opponents are taken to be epistemic peers.

to defend our beliefs against potential defeaters proposed by other subjects, and if we can't defend these beliefs, then they are not properly justified⁸. Given this dialectical understanding of epistemic justification, we can define the following notion of epistemic disagreement:

- **Dialectical disagreement:** Two subjects (or more) are in a situation of dialectical disagreement on whether P if they cannot produce a dialectical justified belief for (or against) P .

To avoid Putnam's centrality argument, we propose dialectical skepticism as a gateway to a priori skepticism. The way we approach this is by employing Conant's (2004) distinction between two types 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 . 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 legitimate claim to know that P ⁹. By applying Conant's distinction to a priori knowledge, we end up with two forms of a priori skepticism: *Cartesian a priori skepticism*, and *Kantian a priori skepticism*. The former type questions the possibility of knowing a priori propositions, while the latter challenges the soundness of the proposed epistemic conditions for a priori knowledge. In response to the a priori skeptic, we suggest, in section 4, a specific (epistemic and metaphysical) understanding of logic that blocks her skeptical arguments. According to this understanding, the epistemic nature of logic should be understood from the lens of *epistemic contextualism*, whereas the metaphysical nature of logic should be conceived in terms of *logical conventionalism*. We spend some time defending this position by arguing that the rules of logic can be dialectically justified if we apply (i) the epistemic framework of inferential contextualism and (ii) the metaphysical structure of logical conventionalism to the rules of logic¹⁰. We call this model, the contextual-conventionalist thesis about logic. In section 5, we argue that the contextual-conventionalist thesis can offer a weak transcendental solution to a priori skepticism in its two forms, the Cartesian and the Kantian. Finally, some terminal thoughts are provided in section 6.

⁸Williamson (2004; 2007, 238–41) rejects dialectical justification as it might lead to a global suspension of beliefs in case we met a radical skeptic who does not accept anything as cogent evidence. But this presumption is too strong since a radical skeptic will not be usually considered an epistemic peer in normal circumstances.

⁹If 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?

¹⁰We defend (ii) by providing a reflective equilibrium argument for implicit logical conventionalism.

2 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 hypothesis¹¹. A similar dialectical argument can be constructed in the case of Cartesian a priori skepticism. Consider the Kripkean example of the *quus* function¹². When we say that two subjects (or more) dialectically disagree on whether the “+” in “ $x + y = z$ ” means “plus” or “quus”, the Cartesian skeptic will conclude that there exists *no* way to settle this dispute. In other words, the Cartesian skeptic will argue that, in case of dialectical disagreement, 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 two (or more subjects) dialectically disagree on the interpretation of an a priori sentence P , then there exists no method to *know which* interpretation is the correct one.

When thinking more about EUST, it becomes tempting to ask: how 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 scenarios¹³. In a Possible Worlds notation, a proposition

¹¹Pritchard (2016)

¹²Quus is defined as in Kripke (1982)

¹³Waismann’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

P is open-textured if there exists at least one possible world where the application of P is indeterminate¹⁴. The phenomenon of open-texture is a serious epistemic problem disguised in a semantic form. After all, terms are introduced to be applied for specific objects, and to exclude other objects. Yet, Waismann argues that such simple requirement fails even for natural kind terms¹⁵

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.

3 Kantian A Priori Skepticism

The Kantian a priori skeptical argument proceeds by asking: what are the epistemic *conditions* 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*¹⁶. Yet, the Kantian skeptic sees that these two criteria fail to act as successful epistemic conditions for a priori knowledge. On one hand, necessity fails

is connected to the fact that most of our empirical concepts are not delimited in all possible directions. (121–2)

¹⁴See Margalit (1979) for more discussion.

¹⁵“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)

¹⁶See for example, section B3 of Kant’s *Critique of Pure Reason*.

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 also fails in case of the existence of dialectical disagreement. To elaborate, note that 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 of experience, ii) it must produce warranted beliefs, and (iii) it must produce true beliefs. If these conditions are satisfied, then a subject can assure the existence of a warranted process that generates true a priori knowledge, 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)¹⁷.

- **Unrevisability Thesis (UT):** If subject *S* is justified in believing that *P* a priori, then *P* is (rationally) *unrevisable* in light of any *future* evidence¹⁸.

Does the Kantian skeptic accept UT? The answer is no¹⁹ based on the following pessimistic inductive argument:

- **The Kantian Pessimistic Inductive Argument (KPIA):**
 1. At time t_1 , assume all a priori propositions were considered to be unrevisable.
 2. At time $t_2 > t_1$, some a priori propositions are found to be revisable.
 3. Then by induction, some a priori propositions are going to be revisable in the future.

KPIA's second premise can be defended based on Priest's (2014) distinction between three senses of the word 'Logic': *logica docens*, *logica utens*, and *logica ens*²⁰. First, *logica docens* is logic as claimed by logicians (i.e. what logicians teach about logic in their textbooks). Second, *logica utens* is logic as practiced, for reasoning, by people. Finally,

¹⁷This position regarding the universality of a priori knowledge was also defended by Putnam (1983).

¹⁸Casullo (1988)

¹⁹Casullo (1988, 193) presents Mary's thought experiment to undermine UT. Suppose Mary is a well-trained student of logic 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 priori as it overlooks the "fact that revision can take place on the basis of a priori considerations. Thus, it is possible for Casullo to have a priori knowledge that this is based on a defeasible and/or self-correcting process. See also Field (1998) for a defense of the possibility of defeasible a priori claims.

²⁰Given 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.

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* revised²¹. 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 logic²². 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) argued that it is plausible to revise logical principles (or rules) due to empirical considerations. Another defense of KPIA’s second premise can be found of Bueno and Colyvan (2004) adoption of a “theory change” model²³ to explain changes in logical 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 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 philosophical community shares at least one of these sets, which can be used to debate the other sets. This process definitely leads, at some point, to the revisability of logical rules. It is worth mentioning that the aforementioned defenses of KPIA can be generally understood as a product of dialectical disagreement. This is hard to conceive unless one accepts the dialogical nature of logic²⁴. To sum up, if KPIA is true then the Kantian skeptic is in a strong position by deflating the available two meta-epistemic conditions for a priori knowledge: necessity and universality.

4 Rethinking A Priori Skepticism

The aim of this section is to argue for a particular characterization of logic, which we call the *contextual-conventional* view of logic. The basic idea is to propose an epistemological view 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.

²¹“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)

²²“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)

²³Developed first by Laudan (1984).

²⁴A thesis that we advocate in section 4.

4.1 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 later²⁵. 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 contexts²⁶; 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*²⁷. In that way, inferential contextualism rejects the customary *totality condition* which states that all our beliefs can be rationally evaluated at once²⁸. On 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 evaluation²⁹. 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’ “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

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

²⁶As claimed by semantic contextualism.

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

²⁸Williams (1991, 90)

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

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 criticism³⁰.” 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 contextualism³¹.

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*. As there are inferential contexts that were formed in more *dialectically reliable* ways than others, and this is the subject of our next subsection.

4.2 Logical Conventionalism

Conventionalism is, briefly speaking, the thesis that some truths (e.g. logical and 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. Logical conventionalism can be defined as follows:

³⁰(Williams, 2001, p. 227).

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

- **Logical Conventionalism:** given a logical system L , for any logically true sentence a in L , our linguistic conventions C fully explain why a is true³².

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 conventionalism³³. His criticism is generally accepted by many contemporary philosophers as a powerful argument against explicit conventionalism³⁴. 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 kicking³⁵, and here we propose another defense of implicit conventionalism that is motivated from a dialogical perspective³⁶.

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 conditioned by the Greek sociocultural structure, especially their practice of debating³⁷. 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

³²Warren (2016).

³³Other 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.

³⁴For 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)

³⁵See Azzouni (2014) and Warren (2015) for an extensive defense of this position

³⁶We 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.

³⁷See also Castelnérac and Marion (2009) for more on this point.

by making rule-governed moves, etc³⁸). This historical connection between logic and dialogical practices can also be found in other philosophical traditions like the Islamic tradition³⁹, and is also present in medieval logic⁴⁰. 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 with respect to 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.

4.3 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

³⁸See Lorenzen and Lorenz (1978) for another formulation of these dialogical games.

³⁹As found in Rahman and Iqbal (2018).

⁴⁰Stump (1989).

notations: let the set of knowing subjects⁴¹ 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 $K(s_i, p_m, t_l, c_v, co_n)$ to denote that subject s_i knows proposition p_m at time t_l given a specified context c_v and a specified convention co_n ⁴². Given our framework, the last two parameters— c_v and co_n —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_n 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)

⁴¹Knowing subjects are treated in first person, and not as third person attributions.

⁴²Similar descriptions can be used for other epistemic notions like ‘justification’. In that case, take the ordered n -tuple $J(s_i, p_m, t_l, c_v, co_n)$ to denote that subject s_i is justified to belief proposition p_m at time t_l given a specified context c_v and a specified convention co_n .

5 A Transcendental Argument against A Priori Skepticism

In this section, we present a *weak* transcendental argument⁴³ 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 ⁴⁴. We call this type of argument a *strong* transcendental argument. In contrast, 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 Y is not self-evident, yet it is a *conceivable* view about Y that the skeptic *can* accept, and b) X is just 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 case the truth value of a specified P does not shift when changing the *context* (and fixing the language), while in the latter case 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 _{x} if and only if, in every case _{x} in which the premises are true, so is the conclusion.

⁴³Transcendental 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.

⁴⁴There is a huge debate which started by Stroud'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) discussion of the notion of “function” in constructive mathematics. Their argument is that we can find two inconsistent, yet correct understandings 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*⁴⁵. 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 ε that behaves in a non-classical way⁴⁶. This seeming contradiction can be worked out by relying on intuitionistic logic (i.e. denying the law of excluded middle⁴⁷). By shifting the context from classical analysis to smooth infinitesimal analysis, there was a meaning-shift of concepts like “not”, “for all” and even

⁴⁵The 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.

⁴⁶On 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: $(\forall\varepsilon) (\varepsilon^2 = 0 \rightarrow \neg(\varepsilon \neq 0))$.

⁴⁷See Shapiro (2014) and Hellman (2006).

“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.

Concerning claim 1, recall that EUST resulted from a dialectical disagreement regarding the knowledge of the correct interpretation (or context) of P . Now given the proposed contextual-conventional understanding of logic, if we have an internal-contextual convention, then there is an agreement on the truth value of P . This means that a dialectical disagreement over the relevant interpretation (or context) of P can be settled by an internal-contextual convention, which is sufficient to refute the Cartesian skeptic. Also, recall that the essence of the Kantian skeptical argument is the impossibility of knowing the conditions of a priori knowledge. Thus, it is not possible to know whether P is a priori or not since the two proposed conditions (i.e. necessity and universality) for a priori knowledge fail. Put differently, what the Kantian skeptic claims is that there will always be a dialectical disagreement on the conditions of a priori knowledge. Now notice that if we have an external-contextual convention (as in claim 2), then we have an agreement on the truth value of P ⁴⁸, and hence on the conditions required for P to be true. This means that we can construct a wide-ranging agreement on the conditions⁴⁹ of the truth value of P , which is sufficient to counter the Kantian skeptic.

6 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)

⁴⁸Even if we change the language and context used to express P .

⁴⁹These conditions do not have a specific essence as they are subject to contextual-conventional formation.

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 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 internal and external contextual conventions. Whether this is a *feasible* goal or not is a different question beyond the scope of this paper.

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