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On Logical Aliens

Alessandra Tanesini

1 Introduction

Frege wrote about the laws of logic that "they are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all." Hence, for Frege the laws of logic are the laws of thought. They are not psychological laws which describe the mental processes that occur when one is thinking. Instead, these laws stipulate how one ought to think. They are constitutive of rationality, and consequently they are what makes thought possible at all. Further, Frege claims that these laws have universal application. Every thinking being is a being whose thought is governed by the same logical laws.

Frege's view exemplifies a position which I call logical absolutism. This is the view that there is only one correct logic whose application is universal. This position is almost universally accepted, presumably because its denial, logical pluralism, appears to be a non-starter. Logical pluralism, as I understand it, is the view that there is more than one, mutually incompatible but equally admissible, logic. Or to put the matter differently, there could be beings who are capable of thought*, but whose thoughts* are governed by laws of logic* which are incompatible with our own. In other words, logical pluralism entails the possibility of logical aliens. In this paper I explain and defend

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2 The claim that for Frege the laws of logic are necessary conditions for the possibility of thought has an obvious Kantian flavour. This Kantian aspect of Frege's account of logic has been discussed by James Conant, "The Search for Logically Alien Thought: Descartes, Kant, Frege, and the Tractatus," Philosophical Topics 20 (1992), 155–180; see especially 134–137. I shall not address the issue as to whether the laws of logic are the sole necessary conditions for the possibility of thought.
3 I use the asterisk to indicate that in so far as the laws of logic are constitutive of thought, aliens cannot think. However, they could think*. That is to say, they could engage in a law-governed activity which plays in their lives a role that is not dissimilar from the role that thinking plays in ours. The same considerations apply mutatis mutandis to logic*, belief*, judgement*, etc. Hereafter, I sometimes use "logic" to refer to logic proper but also logic* and to thought proper but also thought*. What is meant should be clear from the context.
logical pluralism and the possibility of aliens. In my view logical absolutism is incompatible with a proper understanding of the normativity of logic given the fact of human finitude. For this reason, I conclude one must accept both pluralism and the possibility of alien thought.*

This chapter consists of four sections. In the second I explain what I mean by logical pluralism and contrast my view with the kind of logical pluralism proposed by J.C. Beall and Greg Restall.4 I also argue that their position cannot do justice to the normativity of logic as the set of laws governing human thought. In the third section, I discuss in some detail an argument offered by Hilary Putnam against the view that all logical principles can be revised. Putnam derives from this argument a further conclusion which is tantamount to a denial of logical pluralism. I argue that Putnam's argument that there are at least some unreviseable laws of logic fails. I also show that even if the argument were successful, it would not warrant the further conclusion that wholesale logical disagreement is impossible. In the fourth section I consider an argument which has been developed by James Conant. Conant extracts this argument from some of the considerations offered by Frege against the psychologistic logician. The argument is best seen as directed against all forms of logical pluralism, rather than merely as an argument against psychologism in logic. I show that, even if the argument might be successful against psychologism, it fails to refute logical pluralism. Since none of these arguments are in the least convincing, I conclude that logical pluralism has not been refuted.

2 Logical Pluralism

The position occupied by the logical pluralist should not be confused with that occupied by the deviant logician. Supporters of deviant logics typically are logical absolutists. They believe that there is only one correct logic; or, at least, only one correct logic for any given region of discourse.5 They argue, however, that such a uniquely correct logic is one which is an alternative to classical logic. In a word, the deviant logician believes that classical logic is incorrect and that it must be either globally or locally abandoned in favour of another logic which is incompatible with it.

I have described logical pluralism as the view that there is more than one, mutually incompatible but equally admissible, logic. In order to make the position clear, I need to say a few things about what I mean by a logic being admissible, and two logics being incompatible. I offer my account by contrasting it with some features of the position which Beall and Restall have also labelled "logical pluralism." In what follows I argue that my account, unlike theirs, does full justice to the normativity of logic as the domain of the laws of thought of finite beings.

A logic is characterized by its laws.6 These are laws about logical consequence. They tell us which propositions or thought contents follow logically from other propositions or thought contents. Thus, I take the notion of logical consequence as the primitive in terms of which the notion of logical truth is defined.8 There are at least a couple of reasons for this choice. Firstly, as John Etchemendy remarks, logical consequence is the primitive logical notion because, "[l]ogic is not the study of a body of trivial truths; it is the study of the relation that makes deductive reasoning possible."9 Secondly, Frege's characterization of the laws of logic as the laws of thought encourages this approach.10

Logic, therefore, is normative. For instance, if Modus Ponens is a logical law so that Q follows from P and if P then Q, then one goes wrong if one fails to accept Q whenever one accepts both P and if P then Q. In my view, a view that I cannot fully defend here, these laws are constitutive of thought. In other words, nothing can violate these laws and still count as fully fledged thought. Thus, the laws of logic are akin to the laws of physics, which cannot be violated. Hence, if I am right, the individual who fails to accept Q, whilst accepting both P and if P then Q (assuming that Modus Ponens is a law of logic) does not

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5 Some deviant logicians support a global reform of logic; others are in favour of a local reform. For a good discussion of these issues, see Susan Haack, Deviant Logic, Fuzzy Logic: Beyond the Formalism (Chicago and London: The University of Chicago Press, 1996), 42–46.
6 In this paper I am exclusively concerned with deductive logic. Thus, "logic" hereafter should be read as shorthand for "deductive logic." Since deductive reasoning does not constitute the whole of thinking, there will further laws of thought besides those discussed here.
7 Beall and Restall, Logical Pluralism, 35.
8 For instance, one can define logical truth as follows: a logical truth is a logical consequence of any sets of propositions whatsoever.
10 Admittedly Frege wavered between two different conceptions of logic. The one which I have described in this paper, and another according to which logic is the science of the most general truths.
reason in an illogical way. Rather such an individual fails to reason because there is no such thing as an illogical thought. I shall return to the constitutive nature of logical laws and the consequent impossibility of illogical thought in the final section of this paper where I argue that the impossibility of illogical thought does not, contra Frege and Conant, entail the impossibility of logical aliens. In this section I aim to provide a fuller characterisation of logic pluralism under the assumption that the laws of logic are constitutive of thought.\textsuperscript{11}

I agree with Beall and Restall that the intuitive pre-theoretic notion of logical consequence as the relation that holds between the premises and the conclusion of a deductively valid argument provides a useful starting point in the study of logic. My motivation for taking the intuitive notion as a starting point is that logic is an \textit{a priori} discipline and we have no real alternative when we wish to study it. Beall’s and Restall’s motivation seems somewhat different. They think of logic as the study of the ordinary concept of logical consequence.\textsuperscript{12} They aim to reveal that this concept is not precise but vague or unsettled. Setting aside the possibility that the vagueness might reside in the conceptual system alone rather than in reality, they derive pluralism about logical consequence relations from the unsettledness of the ordinary concept.\textsuperscript{13}

I presume, however, that at bottom our concern is the same. We are all interested in the logical norms that govern thought. Beall and Restall adopt something like a Ramsey-Carnap-Lewis approach to defining theoretical terms with regard to logical consequence. They flesh out what is implicit in the ordinary conception of logical consequence and aim to show that more than one precise notion equally satisfies the ordinary conception. My approach is different since I believe that our ordinary folk theory of logical consequence as manifested in the ordinary concept could turn out to be wrong about the logical laws that actually govern our thought. However, as I said above, we have no alternative but to start from the ordinary concept of logical consequence.

Logical consequence is what logicians attempt to capture in their formal deductive systems, they try to prove results about it, and even to mechanize it. Hence, as Etchemendy remarks, “the question of whether a particular deductive system for a particular language is sound and complete is always a sensible, and indeed important, one to ask.”\textsuperscript{14} Answers to this question are not merely of technical interest because the proofs of soundness and completeness give us results about the relation between the formal notions of syntactic and semantic consequence. Whilst the formal notion of semantic consequence, employed in these proofs, is not guaranteed to coincide with the pre-theoretical notion of logical consequence, nevertheless the fact that it makes sense to ask such questions shows that there is a relation—namely, logical consequence—which is not generated by the formal deductive system and which the system tries to capture.

An admissible logic is a deductive formal system which accurately reflects at least an aspect of the semantic relation of logical consequence. The debate between classical and deviant logicians is over which deductive system is admissible, both camps presuppose that only one such system will fit the bill. Logical pluralists deny this presupposition.

“Logical Pluralism,” as I said above is a label adopted by Beall and Restall to characterize their view. In what follows I develop further the contrast between the view I wish to defend here and their position. Beall and Restall propose the following schematic characterization of validity which they take to capture our pre-theoretical concept of logical consequence:

Generalised Tarski Thesis (\textit{GTT}): An argument is valid, if and only if, in every case, in which the premises are true, so is the conclusion.\textsuperscript{15}

Since logical consequence is the relation that holds between the premises and conclusion of a valid argument, \textit{GTT} identifies logical consequence with truth-preservation in every case. However, as the presence of the subscript “\textit{x}” in \textit{GTT} indicates, this characterization needs to be complemented with a specification of the cases. Beall and Restall also point out that there are many different specifications of such cases, because they reflect some aspect of the ordinary concept of logical consequence. This latter point, they claim, is at the heart of their conception of logical pluralism.\textsuperscript{16}

Beall’s and Restall’s position can be summarized as follows:

\begin{enumerate}
  \item Logical consequence is the relation that holds between the premises and the conclusion of a deductively valid argument.
  \item A deductively valid argument is one that preserves truth in all cases.
  \item There are at least two equally admissible, but non-equivalent, specifications of all the cases.\textsuperscript{17}
\end{enumerate}

\textsuperscript{11} Beall and Restall do not think about the normativity of logic in this way. Rather, they think that the norms of logic are regulative of thought and can be trumped by other norms. Beall and Restall, \textit{Logical Pluralism}, 17.

\textsuperscript{12} Beall and Restall, “Logical Pluralism,” 491 and \textit{Logical Pluralism}, ch. 2.

\textsuperscript{13} Beall and Restall, \textit{Logical Pluralism}, 27–8.

\textsuperscript{14} Etchemendy, \textit{The Concept of Logical Consequence}, p. 157.

\textsuperscript{15} Beall and Restall, \textit{Logical Pluralism}, 29.

\textsuperscript{16} Beall and Restall, “Logical Pluralism,” 478.

\textsuperscript{17} Beall and Restall, \textit{Logical Pluralism}, 30–31.
Beall and Restall introduce the notion of an admissible specification of the cases to refer to a specification of the cases which exhibits “the features required by the (settled) notion of logical consequence.” These settled features are: necessity; normativity and formality. That is to say, the pre-theoretical notion of logical consequence has some settled or core components. One such component is that the relation is necessary as it applies to all cases; another is that logical consequence is a normative relation because to endorse a claim is to commit to what logically follows from it. The final settled component is that logical consequence is a formal relation in at least two senses: (a) it is indifferent to the identities of the objects referred to in the arguments and (b) it abstracts from the semantic contents of the thoughts or propositions that form part of the argument.\(^9\)

Beall and Restall defend claim (3) in the argument above by way of example. They point out, for instance, that both Model Theoretic and Possible World Semantics offer plausible specifications of all the cases, specifications which can be plugged into the pre-theoretical definition of logical consequence. Yet, they argue, these specifications lead to different classifications of which arguments are valid. For example, consider the arguments:

This object is red all over. Therefore, this object is not white all over.
This object is red. Therefore, this object is colored.

These arguments are valid, if we adopt the specification of all the cases in terms of possible worlds, since in every world in which the premises are true, the conclusions are also true. These same arguments are, however, classified as not valid if we adopt a model-theoretic semantics. The first argument has true premises and false conclusion whenever the element in the domain which is assigned to the name “this object” is a member of the set assigned to “red” but also a member of the set assigned to “white.” Intuitively, this is possible because “white” could be interpreted to mean “square.”\(^{20}\)

This example, Beall and Restall claim, shows that there are at least two accounts of logical consequence and validity such that (1) they are not equivalent (they classify different arguments as valid) and (2) they have an equal claim to being a way of fleshing out the pre-theoretical notion because they are both admissible.

Beall and Restall do not think of these two different specifications of all the cases as genuine rivals. More surprising is their view that the same can be said of the relation between, for instance, relevance and classical logic. These, also, are not rivals. Rather, Beall and Restall think of relevance and classical logic as different ways of making precise the vague or unsettled pre-theoretical notion of logical consequence. Different precisifications are all admissible if they share the settled parts of the role played by logical consequence. There is no point in asking which of these precisifications is correct as there is no fact of the matter which could settle this further issue.\(^{21}\) In so far as, for example, both possible world semantics and model theoretic semantics, in their different ways, offer precisifications of logical consequence as a necessary, normative and formal relation, Beall and Restall are happy to accept both as admissible. Although no further questions about correctness are in their view legitimate, it makes perfect sense to ask questions about the utility of any precisification for a given purpose. Thus, rivalry among logics only emerges at the level of applications.\(^{22}\)

Beall and Restall are committed to the view that there is no fact of the matter as to whether an argument is valid full-stop, since this notion of validity is vague or unsettled. The only questions that have definite answers concern whether arguments are valid in a specific precisification of the notion. Thus, one can say of disjunctive syllogism that it is classically valid but not relevantly valid. The further question as to whether it is really valid makes no sense because there is nothing which would corroborate a negative or affirmative answer.\(^{23}\)

Thus formulated their position faces at least two serious objections. First, it develops a variant of logical pluralism which is somewhat trivial insofar as their position is compatible with Fregean absolutism about logic. Second, it cannot do justice to the normativity of logic understood as the collection of laws governing thought.

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\(^{18}\) Beall and Restall, *Logical Pluralism*, ch. 2.

\(^{19}\) Beall and Restall, *Logical Pluralism*, ch. 2.

\(^{20}\) For a discussion of cases understood respectively as possible worlds or Tarskian models see Beall and Restall, *Logical Pluralism*, ch. 4.

\(^{21}\) The view that the pre-theoretical notion of logical consequence is vague is developed in Beall and Restall, *Logical Pluralism*, chs 2 and 3. Their earlier view was that the notion was ambiguous and that each logic was a disambiguation of it. Cf. “Logical Pluralism,” 484.

\(^{22}\) Beall and Restall, *Logical Pluralism*, ch. 2.

\(^{23}\) Restall, “Carnap’s Tolerance,” 426.
In order to see why their account makes logical pluralism seem trivially true, we need simply to consider that syllogisms are not truth-functionally valid. Thus, by their lights propositional logic and first order monadic predicate logic constitute different but equally admissible logics. To the objection that these considerations make the view trivial, they respond that not all instances of pluralism are as uninteresting as that. Further, they add, triviality is no objection to the truth of a position. This response in my view misses the point of the objection. Critics are not objecting that the view is true in an uninteresting way. Rather, they are indicating that any logical pluralism worth its salt should be defending a different view, one according to which classical propositional logic and classical first order monadic predicate logic count as one logic but which nevertheless admits a plurality of logics. In other words, pluralism about logics should involve some incompatibility or rivalry among the different logics. But as I discuss below, Beall and Restall explicitly deny that this is the case in their view.

My main objection to their view, however, is that it fails to account for the normativity of logic as the collections of law constitutive of thought. In response Beall and Restall would simply deny that logic is normative in this sense. Instead, they claim that we often have inconsistent collections of beliefs or commitments. Further, relying on the so-called paradox of the preface (where one expresses commitment both to every claim in the book and to the claim that there will inevitably be errors in the book), they conclude that logical norms can be trumped by other norms.

I find both claims to be unconvincing if they are intended to refute the view that logic is constitutive of thought so that illogical thought is impossible. The paradox of the preface concerns warranted assertibility rather than logical consequence. It is perfectly rational to be less warranted in asserting the conjunction of a collection of claims than in asserting each of the conjuncts. The claim that we all hold logically inconsistent commitments is not as obviously true as Beall and Restall appear to assume it is. It is true that we are all prepared to voice sentences which, if interpreted in accordance with their common uses, would express inconsistent thoughts. But it does not follow from this consideration that inconsistent thoughts are genuinely thinkable. Rather, what follows

is that one might under the impression that one is thinking thoughts such that if one did think them, one would think an inconsistency. It is beyond the scope of this chapter to develop this view. To see how an argument for it can be developed one would need to explore the connections between possibility and conceivability. Unless the latter is understood psychologically, only what is possible can be conceived. Consequently, one cannot genuinely conceive or think what is not possible. Therefore, one cannot think inconsistent thoughts. These considerations, or something like them, are at the root of the view that can be found in Wittgenstein's *Tractatus Logico-Philosophicus*, according to which logical contradictions do not express genuine propositions.

Whilst a full defence of a constitutivist account of the normativity of logic is beyond the scope of this chapter, in what follows I want to show that it could do justice to the intuition that if there is a plurality of logics, then these must in some sense be incompatible. I begin by showing that Beall and Restall cannot make sense of the thought that different logics must in some important sense be rivals. Beall and Restall claim that "pluralism is not a recipe for wholesale agreement" among logics. They think there is scope for disagreement among logical systems only with regard to how useful they turn out to be when applied to mathematics or when developing a semantics for a given area of discourse.

Elsewhere, Beall and Restall present the case by way of an analogy with Euclidean and non-Euclidean geometries. They point out that, once applied, these geometries can be seen as competing models for the physical space of our region. Similarly, they claim, "once applied, there is scope for genuine disagreement between logical systems. However, this disagreement comes about simply by applying the logic to model the validity of the real argument." This analogy is revealing. A geometry is in itself simply an abstract structure; we can think of it as a model for space only once we have developed an interpretation for it. The model is then subjected to tests to see how well it models empirical reality. Thus three elements are in play here. There is physical space,

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24 This objection has been formulated by G.C. Goddu in "What Exactly is Logical Pluralism?", *Australasian Journal of Philosophy* 80 (2002), 215-20, see 215.
27 Contra Beall and Restall, I do not see that the point must concern degree of belief (rather than warrant in assertion), *Logical Pluralism*, 17-18.
29 An inferentialist account of semantic content would be an essential part of this position. Offering such an account is beyond the scope of this chapter. For an extremely sophisticated version of such a view see Robert Brandom, *Making It Explicit: Reasoning, Representing, and Discursive Commitment* (Cambridge: Harvard University Press, 1994).
30 Beall and Restall, "Logical Pluralism," 488.
31 Thus, for instance, they remark that relevant logic might be better suited than classical logic to providing a semantics for fictional discourse. Beall and Restall, *Logical Pluralism*, 57.
32 Beall and Restall, "Logical Pluralism," 489.
an uninterpreted abstract structure and an interpretation that assigns to elements of the structure a meaning in physical terms. When geometries are conceived solely as abstract structures, different geometries are simply different from each other. It would make no sense to think of them as incompatible or rivals. Things, including abstract entities, can only be either the same or different. They cannot be rivals. Rivalry or incompatibility only exists among items which have correctness conditions.

Beall and Restall think of logic in ways that are analogous to the application of geometry to space. In their view there exists a plurality of formal systems governed by syntactical rules. These systems are abstract structures and as such they cannot be rivals. Each of these systems includes some syntactical rules which are plausibly interpreted as playing a role which reflects some settled components of the role played by logical consequence given the ordinary concept of the term. This is what warrants thinking of these formal systems as logics. Once so interpreted each of these systems can be used to model the validity of real arguments. Some of these models will be better than others because they best capture our intuitions about which arguments ought to turn out as valid and which ought not to. It is only in this sense that logics can be each other rival.

This picture in my view misconstrues the relation between logic and thought. To see this consider that, generally speaking, what is modelled in a model exists independently of the model itself. Hence, one may say that physical space and abstract structures exist independently of each other. In particular, physical space exists independently of interpreting some abstract structure or other as a model for it. The same however cannot be said of logic and thought. Clearly if the norms of logic are constitutive of thought, thought does not exist independently of them. But even if logical norms are just regulative, so that good thought is thought that obeys logic (whilst bad thought violates logical norms), the role of logic is to guide reasoning and not to model it. Either way the picture of logic as a model reflecting relations that pre-exists it is based on a false picture of normativity. Norms do not describe (as models do), they prescribe.33

I have claimed that logical laws are constitutive of thought and that Beall and Restall fail to do justice to the normativity of logic. It might seem to follow that I am committed to logical absolutism. If logic is constitutive of thought, so that thought is impossible without logic, then there can only be one logic or at least only one for any given domain of discourse. This conclusion is premature as it neglects the finitude of those (human) beings who are capable of thought. But in order to make this point I need first to say something about our concept of logical consequence, and how we can make sense of the idea that there might be incompatible laws about what logically follows from what.

In my view the pre-theoretic notion of logical consequence is a “family resemblance” concept, rather than a concept which is vague or unsettled. Two related aspects of family resemblance concepts are important in this context. First, there need not be any property which is shared by all the instances of a family resemblance concept. Second, a distinctive feature of family resemblance concepts is that we might disagree as to whether something is an instance of it, and both be correct. Further, we do not need to say that in this instance we would be using distinct concepts. Thus, our apparent disagreement is not explained away as mere equivocation.34

For example, two people might disagree as to whether an activity is a sport. Consider, for instance, the case of balloon dancing. Some might argue that it is a sport, and as such deserves to be included in the Olympic Games. In order to make their case, they might point to the similarities with gymnastics which is a well-established Olympic discipline. Others might deny that balloon dancing is a sport, and point to the similarities with other forms of dancing. They might claim that since ballet is not a sport, although its practice requires that one possess highly developed athletic skills, balloon dancing is best seen as an art form. In this case, both parties are making incompatible recommendations on how to extend the concept of a sport. Thus, their disagreement is genuine; it is not an equivocation. Further, since each party’s recommendation is permitted by the current use, and neither is prescribed by it, there is a sense in which both parties are right: they are both within their rights to make the recommendations they do.

I think of some disagreements among supporters of different logics along similar lines. They would be making incompatible prescriptions about how one ought to think in novel cases which are not determined by pre-existing laws.35 But not all disagreements about logic need to be thought of as incompatible extensions of a pre-existing common system of logical laws. There might also be cases of beings which are alien to one another from the start.

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34 Michael Lynch has defended metaphysical pluralism by arguing that truth is a family resemblance concept. The logical pluralist takes this position one step further. Lynch’s discussion of family-resemblance concepts can be found in *Truth in Context: An Essay on Pluralism and Objectivity* (Cambridge, Mass.: The MIT Press, 1998), 62–66.

35 This idea was suggested to me by Alan Weir.
In these cases each population would be entertaining some propositions that are beyond the grasp of the other group, and reason about them. In these cases, their thinking may be governed by laws which are incompatible with the laws of the other group.

Both possibilities are secured by the finitude of both parties. In the first kind of case, a group might discover that its current logical laws do not supply an answer in all cases; this group might split into sub-groups that make different recommendations about their extension. This case is possible because it is a mark of finitude that it involves thinkers who have not thought all the thoughts which are possible for them to think. What makes the second kind of case possible is the existence of propositions that human beings are not capable of entertaining either because they are too complex or because they include concepts (including formal ones) we cannot grasp. These might be accessible by other (alien) beings. It is important that among the concepts* that we cannot grasp are included logical* constants, since otherwise these logics* would fail to be formal in the sense of being independent of the semantic contents of thoughts*. Nothing (logically) rules out this possibility since our best accounts of what counts as a logical constant are either given by enumeration or are derived from a primitive notion of logical consequence.

Incidentally, and this is a point to which I return in section 3 below, the first kind of disagreement illustrates that logical laws might be subject to evolution or rational revision. This occurs when current laws do not fully determine whether a given argument is valid because the argument introduces a new vocabulary in the form of novel logical constants. Thus, revisions of the laws of thought are possible. It is important to keep cases such as this one distinct from the kind of rational revision which is the topic of Putnam’s arguments (discussed in section 3). Although Putnam appears to suggest that he is concerned with whether logical laws or principles are rationally revisable, his arguments lend themselves to be interpreted differently. What often seems to be actually at stake in Putnam’s arguments is whether our theories about what the laws of logic might be are revisable. When so understood, it is apparent that the study of logic even though conducted a priori is no more immune from error than any other human attempt to gain knowledge.

The way of looking at disagreement over logic that I have proposed here has definite advantages over Beall’s and Restall’s. First, as I have argued above, it helps to make plausible the idea that genuine logical disagreement might exist. Second, it also helps to make sense of the idea that there are genuine logical laws that prescribe thought and which different formal systems attempt to capture. Logical consequence is not a vague notion, which needs to be substituted by several different precise ones. But it is one whose range of application

might not be determined in every instance. Thus, unlike Beall and Restall I am not committed to the counter-intuitive claim that it makes no sense to ask whether, for example, disjunctive syllogism which is classical valid but not relevantly valid is really valid. Given my account the question makes sense, and it might encourage us to explore novel extensions of our reasoning practices so as to give a definite answer to this question. In order to achieve this, we can advance a whole host of considerations in debate.

Let me now turn to the issue of triviality. I have claimed that given Beall’s and Restall’s characterization, even classic propositional and classic first-order logic turn out to deploy different notions of logical consequence. I have also claimed that this fact trivializes the position. After all Frege would not have been concerned by it. Classical first-order predicate logic is an extension of classical propositional logic.6 In order to obtain a genuine pluralist position one must argue that there are incomparable, yet equally admissible, kinds of logical consequence.

The notion of incompatibility I have in mind is more easily expressed in terms of logical truths, but a formulation in terms of logical consequence can be derived from it.

There are two ways in which two logics L1 and L2 can be incompatible, and in order to characterize them both, I need to introduce the notion of a logic being an extension of another:

A logic L1 is an extension of a logic L2 if and only if the class of the grammatical sentences of L1 properly includes the class of the grammatical sentences of L2, and the class of the logical truths of L1 properly includes the class of the logical truths of L2, and the additional logical truths of L1 all contain essentially occurrences of L1’s additional vocabulary.37

I am now in a position to characterize a strong and a weak sense in which two logics are incompatible:

Strong Incompatibility between two logics L1 and L2: There is a sentence S, such that S is a logical truth in L1 (L2), and the contradictory of S is a logical truth in L2 (L1).

Weak Incompatibility between two logics L1 and L2: L1 is not an extension of L2, and L2 is not an extension of L1, and there is no logic L3 such that L3 is an extension of both L1 and L2.

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6 The notion of a logic being an extension of another is defined below.

37 For this definition, see Haack, Deviant Logic, 4.
The relation of strong incompatibility captures a sense in which two logics can be straightforward rivals. Supporters of the two logics will contradict one another, and the contradiction cannot be explained away by invoking meaning variance. The relation of weak incompatibility is trickier. There need not be anything which the supporter of one logic asserts, but which the other is prepared to deny. A change of logic in this instance involves changes in concepts or meaning. Meaning or concept variance, however, is not a sufficient condition for lack of conflict. What the notion of weak incompatibility is meant to capture is the possibility that two logics might be such that there is a widespread failure of intertranslatability.  

This weakened notion of incompatibility is central to the case for logical pluralism, because it shows that we do not need a common metalinguage within which we can talk about both logics and show that they are in conflict in order to claim that two logics are incompatible. I return to this issue in the third section where I discuss an argument, offered by Conant, against the possibility of logical aliens which smuggles in the presupposition that two logics are incompatible only if it turns out that one treats as logical truth a sentence whose contradictory is a logical truth in the other logic.

Having thus characterized logical pluralism, and shown why it is not a non-starter, I now turn to consider arguments which can be taken to show why it must be mistaken. I show that these arguments fail.

3 The Revisability of Logical Laws

In a series of papers about the status of logical and mathematical necessity Hilary Putnam has offered a few arguments against the possibility of what I have called logical aliens. For instance he claims:

The idea is that the laws of logic are so central to our thinking that they define what a rational argument is. This may not show that we could never change our minds about the laws of logic, i.e., that no causal process could lead us to vocalize or believe different statements; but it does show that we could not be brought to change our minds by a rational argument. [...] And indeed, Aristotle remarks that if anyone pretends to disbelieve one of the laws of logic and undertakes to argue with us, we can easily convince him that his own argument presupposes the very laws of logic that he is objecting to.  

Like Frege, Putnam takes the laws of logic to be the laws of thought. He explains this point by saying that logic is definitive of rationality. Since nothing could count as a thought unless it stood in rational relation to other thoughts, it follows that the laws of rationality are the laws of thought. They are what make thinking possible.

Putnam holds that we can derive almost immediately two conclusions from this conception of logic: first, at least some laws of logic cannot be revised, and that no one could offer an argument against our laws of logic without employing the very laws of logic he is arguing against. I think that neither conclusion is warranted. But before showing that this is the case, I need to make explicit why Putnam’s argument is relevant to whether or not logical aliens are possible.

The second conclusion that Putnam claims to derive from the conception of the laws of logic as laws of thought is almost tantamount to denying logical pluralism. Putnam’s conclusion states that there could not be an individual who explicitly disagrees with us about logic, and who does not implicitly rely on that very logic. There must be only one logic. Putnam’s conclusion requires that the individual in question possesses a conceptual apparatus that enables him to talk about logic. This is indicative of a lack of clarity as to whether it is the laws of thought themselves or our theories about them which are allegedly immune from rational revision.

In my description of what logical aliens would have to be like, I have been silent about the breadth of their expressive capacities. Prima facie, at least, it seems possible to think that there could be creatures whose thoughts are governed by the laws of a particular logic, but whose conceptual apparatus does not equip them to think and talk about these laws. I shall not explore this issue, and assume here, for the sake of argument, that logical aliens would have to have logical concepts required to talk about the laws governing their thoughts.

In a note to the article I am considering Putnam remarks that there are two ways of challenging the laws of logic. First, somebody might assert what another person denies. Second, a person might understand differently from another

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38 I do not address Quine’s arguments that in any case where a translation fails or interprets the other culture as holding a logic different from our own, we should conclude that there was a problem with the translation. These arguments have been refuted, at least to my satisfaction, by Haack, Deviant Logic, 8–24.


40 Thus Putnam takes the normativity of logic to be constitutive of thought, along the lines I have endorsed in the first section of this paper.
some of the notions that are crucially involved in spelling out these laws of logic.\textsuperscript{41} Thus, Putnam distinguishes two different ways of disagreeing about logic. Such a distinction might not be very sharp, since as Quine suggested, one could interpret a disagreement about logical truths as a disagreement over the correct meaning of logical connectives, for example.\textsuperscript{42} Nevertheless, there is an intuitive difference which is captured by Putnam’s distinction. It is the difference between, say, asserting not (P or not P) and proposing an understanding of negation and disjunction which leads one to assert that P or not P is not a logical principle. I shall keep this distinction in mind when I consider whether Putnam’s conclusion follows from his conception of the laws of logic as the laws of thought.

The first conclusion that Putnam derives from his conception of the laws of logic as the laws of thought or rationality is that, at least some logical principles cannot be rationally revised. Putnam’s argument for this conclusion is deeply unconvincing. It does not seem impossible that even though the laws of logic are definitive of what constitutes a rational argument one could revise some of them at a given time whilst relying on others which are kept fixed. Subsequently, one might revise those laws which one previously kept fixed in light of the new revised principles one has already acquired. In other words, as Sellars claimed about the rationality of science as a self-correcting enterprise, “any claim [can be put] in jeopardy, though not all at once.”\textsuperscript{43} This point is so obvious that it is hard to believe that Putnam could have missed it.

In fact, Putnam’s argument essentially relies on another argument which he has developed earlier in the same paper. This is an argument that attempts to establish that there is at least one \textit{a priori} truth. This \textit{a priori} truth is the minimal principle of contradiction: not every statement is both true and false.\textsuperscript{44} Putnam hopes to show that this principle is an \textit{a priori} truth by showing that it is unrevisable. Putnam’s argument for this conclusion is an instance of Modus Ponens:

1. The minimal principle of contradiction (S) is unrevisable

2. If S is unrevisable then S is an \textit{a priori} truth

Hence, S is an \textit{a priori} truth.

Putnam defends the truth of the first premise by claiming that we cannot conceive of circumstances under which it would be rational to give up this principle. In order to defend this claim, he considers what such circumstances would look like. First, he considers whether it could ever be rational to assert what the minimal principle of contradiction denies, namely that every statement is both true and false. This, Putnam claims, is inconceivable because it is tantamount to envisaging circumstances under which it would be rational to assert every statement and its negation. But, as Putnam himself acknowledges, this is not the only way in which this logical principle could be revised.

Instead, we must also consider whether we can conceive of circumstances under which it would be rational to give up simultaneously both the minimal principle of contradiction and the law of double negation. In such circumstances, one would hold that it is not the case that not every statement is both true and false, without also holding that every statement is both true and false. Putnam dismisses this case as describing a genuine possibility in a rather odd fashion:

\[ \text{[\ldots] in that case the statement ‘every statement is both true and false’ would still have the status of being \textit{a priori} false, even if the statement of which it was the negation isn’t \textit{a priori} true. And to concede the existence of such a status as \textit{a priori} falsity is, I think, as much as to concede the existence of such a status as \textit{a priori} truth.} \]

Both claims are incorrect. To concede the existence of the status of \textit{a priori} falsity is not on a par with the concession that there are \textit{a priori} truths, given Putnam’s understanding of what the \textit{a priori} is. Also, it is not correct to claim that in the circumstances under consideration it is being conceded that the statement “every statement is both true and false” is \textit{a priori} false. I take up these two issues in turn.

For Putnam, as for Quine, \textit{apriority} is identified with unrevisability.\textsuperscript{46} Thus for him, a statement is unrevisable if and only if it is \textit{a priori}. It should be quite obvious that this identification is designed \textit{a priori} truths, but that it leads to absurdity in the case of falsity. It makes no sense to say that \textit{a priori} falsehoods

\[ \text{\begin{itemize}
\item Putnam, “There is at least one \textit{A Priori Truth},” 102.
\item Putnam, “There is at least one \textit{A Priori Truth},” 98.
\end{itemize}} \]
are those falsehoods which can never be revised. So, what is an *a priori* falsehood? It cannot be defined as the negation of an *a priori* truth without making unwarranted assumptions about bivalence. Perhaps, it might be a statement which is never rational to start believing. If this is characterization is accepted, there might be *a priori* falsehoods even though there are no *a priori* truths. In other words, there might not be any statement which it would never be rational to give up, although there are some statements which it is never rational to start believing. Thus, if Putnam claims that accepting that some statements are *a priori* false is essentially the same as admitting that some statements are *a priori* truths, because the existence of *a priori* falsehoods entails the existence of *a priori* truths, he is wrong.

Putnam's other claim in the passage quoted above is also mistaken. Under the circumstances Putnam asks us to consider we are not entitled to infer that the claim that "every statement is both true and false" is *a priori* false. In this case the statement that "it is not the case that not every statement is both true and false" is true; however, since the law of double negation does not hold, we cannot infer the truth of the claim that "every statement is both true and false" from the truth of its double negation. From this, it does not follow that under these circumstances the claim that "every statement is both true and false" is false. Rather it follows, that such a claim does not take the value true, which is not to say that it takes the value false. In other words, Putnam holds that the circumstances he is considering are:

not not (every statement is both true and false) is true
not (every statement is both true and false) is not true
(every statement is both true and false) is false

but, they could be equally described as follows:

not not (every statement is both true and false) is true
not (every statement is both true and false) is not true
(every statement is both true and false) is indeterminate

To see that this is a plausible interpretation of the circumstances envisaged by Putnam, consider the following re-interpretation of this case. Suppose that under those circumstances we assign the value indeterminate to any sentence from which we withhold both assent and dissent. Also, suppose that we would say of a sentence that it is false only if we dissent from it, and that it is true only if we assent to it.

Further, we can distinguish two different types of negation: internal and external. These two notions capture the difference between asserting the negation of a sentence and not asserting that sentence. The following principles hold for these two notions of negation:

Not1 (internal): not1 A is true if A is false, false otherwise
Not2 (external): not2 is true if A is false, false if A is true

Suppose that we neither assert to nor deny that every statement is both true or false (S). Then, we assign to that claim the value indeterminate. In such circumstances we are not2 prepared to assert it. Similarly, we are not2 prepared to deny it, by asserting that it is not1 true. But, we are prepared to assert the negations of the negations since that would be tantamount to holding the original claim to be false, which we do not. In other words, the circumstances that Putnam asks us to envisage could be explained thus:

not not1 (every statement is both true and false) is true
not1 (every statement is both true and false) is not2 true
(every statement is both true and false) is indeterminate

Putnam's argument against the unrevisability of the minimal principle of contradiction is that circumstances under which it could be rationally given up are inconceivable, since under such circumstances one would hold every sentence and the negation of every sentence to be true. Instead, I have shown that there are different circumstances which would involve a revision of the principle, and which do not entail such patent absurdity. Admittedly, it is hard to understand what kind of situation would move us rationally to withhold judgement about the claim that every statement is both true and false. But this is not the point, many things which are possible are hard to imagine. Rather, the burden of proof is on Putnam to show the minimal principle of contradiction would be rationally revisable.

It might be objected that since my account involves a certain amount of conceptual revision, it must be seen as involving a change of topic, rather than a change of logic. That is, one might claim that in the example I have presented the meanings of words like "not," "true," and "false" have changed, so that this example does not show that the minimal principle of contradiction, as originally understood, has been revised. This objection is unconvincing. Under the circumstances I have outlined we would have revised our analyses of truth, falsity, and negation. And thus, we would have become convinced that the
new analyses were superior to the old ones, and in light of these new analyses we would abandon our old logical principles. In other words, a change in the analyses of logical concepts is not sufficient to show that there is no conflict in the logics adopted.  

I have argued that Putnam's argument for the claim that at least some laws of logic are unobservable fails. I now turn to the second conclusion which he draws from the argument. He claims that whoever disagrees with us on matter of logic must implicitly rely on the same logic that that person apparently rejects. Of course, Putnam does not rule out the possibility of some disagreement over logical matters. Putnam himself has supported the adoption of three-valued logic in order to deal with quantum phenomena. What Putnam thinks is impossible is wholesale disagreement.

If it is granted that Putnam's argument against the revisability of all logical laws fails, this second conclusion can also be immediately rejected. There is, however, a further reason why Putnam's argument for this second conclusion fails. The unobservability of at least some logical laws does not entail that wholesale logical disagreement is impossible.

Suppose that some laws of logic are unobservable, so that under no circumstances would we rationally be prepared to give them up. In such a case, if there were beings who disagree with us about those laws, nothing they could say would convince us to give up those laws. There might be reasons for giving up those laws, reasons which are grasped by those beings but which are forever beyond our limited intellectual capacities, for instance. Thus, even if it were a fact that there are some logical principles which we can never give up, it would not follow that there could not be beings whose thought was governed by a logic  which did not have those principles as laws.

It should not come as a surprise that unobservability does not entail the impossibility of logical pluralism. The question of revisability is an epistemic question concerning the status of logical notions. The issues raised by logical pluralism are instead in response to questions concerning the metaphysical status of logical notions. More specifically, logical pluralism raises doubts about the absolute necessity of logical laws, and these doubts are likely to be independent of what we might think about our fallibility concerning which laws are the correct ones.

47 For a good argument in defence of this claim, see Haack, *Deviant Logic*, 10.


If the psychologistic logician chooses the first option, she concedes that there is a non-psychological notion of incompatibility. Hence, she concedes that psychologism is false. Also, Conant continues, since “we can only discern a disagreement between our beliefs and those of others against a shared background,” 50 “it is the principles of logic [...] which make such a discernment possible,” 51 the alien beings are not logical aliens at all. Their thought is governed by the same logical principles as ours.

If the psychologistic logician opts for the second option, she also fails to establish the existence of logical aliens, since she establishes at most that

[…] the noises we and the aliens make merely differ from one another, […] then they are no more in disagreement with one another than the moos of two different cows.

Hence,

Rather than showing us that they think differently, [the psychologistic logician] will be unable to show us that they are so much as capable of thought. 52

Hence, Conant concludes that psychologism in logic must be false since logical aliens are impossible. It is worth noting, perhaps, that it is not clear why Conant believes that the burden of proof lies with the psychologistic logician. In other words, it is not clear why such a logician cannot rest content with choosing the second option, and simply claim that it is not up to her to establish that there are logical aliens. She might claim that the onus lies with Conant. He needs to show that logical aliens are impossible, and his argument fails to do this.

It is also worth noting that the first horn of Conant’s dilemma is less than convincing. Conant at some stages seems to rely on the Kantian idea that since logic is constitutive of rationality it cannot be rationally disagreed with. But, as I have already remarked in the context of my discussion of Putnam’s argument, this point merely shows that it is not possible to revise all the principles of logic at once. It does not show that any logical principle is immune from rational revision, and—consequently—rational disagreement.

There is, however, a way of generalizing and strengthening Conant’s argument so that it is directed against all forms of logical pluralism, and its conclusion states that there cannot be logical aliens. The argument so modified would read thus:

There cannot be logical aliens because if there were such creatures, there would be creatures whose logic is incompatible with our own. However, the notion of incompatibility invoked here is a logical notion. Therefore, at least some aliens’ statements stand in a logical relation of incompatibility with at least some of our statements. But, if they stand in these relations, their statements are part of the same logic as our own. Hence, such creatures are not logical aliens, after all.

The argument, however, even when it is thus construed fails. It basically assumes that if two logics are incompatible, there must be a metalanguage within which it is possible to talk about both logics and show that there are some statements which are logically true in one logic and such that their contradictories are logically true in the other. Conant is aware that his argument crucially depends on this assumption, since he writes that:

The first horn of the dilemma rests in part on the claim that it is one of the criteria for whether someone affirms a judgment with which we disagree that he means to deny what we assert. 53

As I have already argued in this paper there is a weaker notion of incompatibility available to the defender of logical pluralism. Once this notion is adopted, it stops Conant’s argument from going through.

Similar remarks can be made against Donald Davidson’s argument that no intelligible sense can be made of the notion of incommensurable conceptual schemes. In a nutshell, Davidson’s argument is that a total failure of intertranslatability is a necessary condition for the existence of incommensurable conceptual schemes. Further, “it is essential to this idea that there be something neutral and common that lies outside all schemes.” 54 However, since no sense can be made of this neutral something, it follows that no sense can be made of the notion of incommensurable conceptual schemes. Conant’s argument basically has the same structure as Davidson’s; in both cases it is assumed that there cannot be conflict (conceptual or logical) unless there is a common framework against which the two systems can be seen to be in direct opposition. Hence, if I am correct that we can make sense of a conflict without requiring a neutral metalanguage, these arguments fail.

50 Conant, “The Search,” 147.
51 Conant, “The Search,” 147.
52 Conant, “The Search,” 147.
53 Conant, “The Search,” 147.
In the second part of his argument Conant claims that strictly speaking we cannot be said to understand the conclusion of the first part of his argument. In his view, we cannot make any sense of the "cannot" in the sentence "there cannot be logical aliens." This is the consequence of a view that Conant attributes to Wittgenstein. It is also a view which has been recently endorsed by Putnam.\(^5\)

For Conant logical truths do not have negations which we understand.

This second part of Conant's argument seem to take the following form: We seem to be in a position to assert: there cannot be logical aliens. But in order to assert this sentence, we must understand what it says. The sentence seems to say that the possibility of logical aliens must be rejected. However, in order to understand this, we would have to understand that whose possibility is rejected. That is to say, we would have to understand something which is impossible. But, what is impossible is not genuinely conceivable. Hence, what is impossible cannot be understood. Thus, no sense can be made of the sentence that there cannot be logical aliens.\(^6\)

Whilst I have much sympathy for these considerations, they are of no use against the logical pluralist as they smuggle in the Wittgensteinian notion of illogical thought. Conant merely presumes that to claim that there could be logical aliens is the same as claiming that there is such a thing as illogical thought. His argument can therefore be re-cast as follows: There cannot be illogical thought. But, the thought that there cannot be an illogical thought is itself an illogical thought. Hence, neither of the following can be coherently stated: there can be illogical thought there cannot be illogical thought.

Thus, formulated the argument has some power. But, it derives its power exclusively from the fact that the notion of illogical thought is nonsense, since there is no thinking without logic. Hence, this argument does not succeed in refuting logical pluralism unless it can be shown that logically alien thought would have to be illogical thought. However, as this paper as shown, logical alien thought\(^*\) is not illogical. As a result, Conant's second argument also fails.\(^7\)

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\(^6\) Conant, "The Search," 149.

\(^7\) A much earlier version of this paper was presented to the philosophy departments at Queen's University Belfast and at the University of Nottingham. A more recent version was delivered at the Selvès and Logic conference held in Höör. I would like to thank the audiences at these events for helpful comments and suggestions.

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**Bibliography**


