Skeptics and Unruly Connectives:
A Defence of and Amendment to the Non-Factualist Justification of Logic

by

Oliver Oxton

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I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

This thesis attempts to positively solve three problems in the foundations of logic. If logical connectives are defined by their introduction and elimination rules, then how might one prohibit the construction of dysfunctional rules, i.e. rules which let us infer anything from anything else? How might one be held accountable to the consequences of those logical rules that they accept in an argument? And, how might one who, for whatever reason, doubts those logical rules regularly taken for granted, be convinced to adopt deductive 'best practices?' A variety of positions in the foundations of logic are reviewed, but it is found that each either fails to answer all questions together, or leads one to troubling epistemic conclusions. This thesis attempts to draw broad lessons from those positions otherwise found wanting, and then builds on the seemingly most plausible perspective; namely, non-factualism. Particularly, it is argued that non-factualism fails to distinguish between epistemic values and epistemic domains, and that the consequence of this distinction allows one to effectively compare the success of their deductive practices with the skeptic.

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Introduction

Discussions in the foundations of logic all, one way or another, must deal with issues arising from two short papers: Lewis Carroll's "What the Tortoise said to Achilles", and Arthur Prior's "The Runabout Inference Ticket". In the first, Achilles and the Tortoise discuss the nature of entailment relations through the examination of a modus ponens argument. Given that one accepts P and $P \rightarrow Q$, would it ever be acceptable to refuse to assent to Q? *Must* one infer Q whether they like it or not? In the second, a new and problematic logical connective, Tonk, is introduced. It's common to think that once one has given suitable introduction and elimination rules for a logical connective, one has done everything required to specify its meaning. Certainly, this is the way we often teach logic to students. Tonk appears to 'follow the rules': it has such introduction and elimination rules, and under certain conditions it can lead us to true conclusions; however, Tonk turns out to allow us to infer anything from anything else, and so it's not clear that the initial rules gave it any sort of meaning at all. The lesson seems to be that one must accept some restrictions on the sorts of definitions of connectives that are allowed, restrictions that will have to be specified outside the formal logical system being developed. This, of course, raises the questions: which principle should be invoked and for what reasons? Before outlining the structure of the thesis, it will first be of benefit to give further detail to these guiding issues.

Carroll's Tortoise, playing the role of the skeptic by accepting both P and $P \rightarrow Q$ but refusing to accept Q, leads Achilles to the conclusion that if he were to ever successfully convince someone to accept Q on the basis of a modus ponens argument, he must get them to accept the validity of modus ponens as a principle, which amounts to having the tortoise

accept an additional true premise along with P and $P \rightarrow Q$: $(P \wedge (P \rightarrow Q)) \rightarrow Q$.[1] One might see this as superfluous, but nonetheless, with this premise in hand *surely* someone must be convinced of Q. Unfortunately, it is recognized that such an argumentative move is inadequate for the hardened skeptic, who will note that acceptance of Q in this case depends still on an application of modus ponens (and, we might notice, and-introduction). Achilles might be tempted to try a similar manouvre again, getting the skeptic to assent to another true principle, which he readily will do: $[P \wedge (P \rightarrow Q) \wedge (P \wedge (P \rightarrow Q))] \rightarrow Q$. But of course, this forces an acceptance of Q, once again, only if one accepts an application of modus ponens. We are obviously on road to an infinite regress.

Russell succinctly describes the problem by saying that logic is lacking "the notion of *therefore*, which is quite different from the notion of *implies*, and holds between different entities... In the first of these [notions], a proposition is actually asserted, whereas in the second it is merely considered."[2] The idea here is that the two premises, P and $P \rightarrow Q$, function differently such that the 'P,' supposedly common between them, is to be read as two different sorts of things. Much more, of course, can be said about Russell's view, but what can be taken away here is that any response to a skeptic of Carroll's kind must make use of some notion beyond truth—be it a more nuanced way of individuating propositions, or a further concept of "therefore." Some notion along these lines will surface at the end of chapter two, and then again in chapter four.

We will see the challenge of Carroll's skeptic throughout all of the thesis, but there is one further thing to note now: what if Tortoise did not accept $(P \wedge (P \rightarrow Q)) \rightarrow Q$? The story goes that Tortoise doubts this hypothetical, but the next assertion of modus ponens quells this doubt. It is only when moving from this additional hypothetical to the conclusion, Q, that the skepticism properly returns, and then repeats. In other words, Tortoise assents to the use of modus ponens, but not to the epistemological "force" of logic. One can easily see then where a far more disastrous doubt so enters: deny the hypothetical outright. This amounts to a skepticism about modus ponens, or about, more generally, certain logical rules. One might, for example, infer by a different set of logical rules than someone else, and if this were case, it would seem that some way of settling the

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[1] Carroll (1995)
[2] Russell (2009)

matter is needed. Call Carroll's story, where the skeptic is interested in force, a type-2 skepticism; and this other more sweeping concern about 'which rules are the right rules,' type-1 skepticism.

In the case of Tonk, or more generally 'bad connectives,' it will be best to follow Prior's original construction of the issue. Say we want to know what the conjunction connective, and, 'means.' Then given a set of introduction and elimination rules which show us the formal application of the connective, we know the meaning "for there is simply nothing more *to* knowing the meaning of 'and' than being able to perform these inferences."[3] Consequently, 'and' means just what is specified by:

1. From any pair of statements P and Q we can infer the statement formed by joining P to Q by 'and'

2. From any conjunctive statement P-and-Q we can infer P

3. From any conjunctive statement P-and-Q we can infer Q

or, more formally:

'And' Introduction: $\dfrac{P \quad Q}{P \wedge Q}$ ... and 'And' Elimination: $\dfrac{P \wedge Q}{P} \quad \dfrac{P \wedge Q}{Q}$

Insofar as one was willing to go along with this understanding of meaning, everything appears to be in place: 'And,' the logical connective, means just what it does by the way it figures in our logical reasoning—that when we know (or accept) two propositions then we can inferentially combine them to form some conjunction, and that we can infer each conjunct when we know (or accept) the whole. Now, we might ask, 'what was this connective "Tonk," and if its meaning can be understood so, then what are its rules of use?' So,...

'Tonk' Introduction: $\dfrac{P}{P\text{-tonk-}Q}$ ... and 'Tonk' Elimination: $\dfrac{P\text{-tonk-}Q}{Q}$

With just these rules one should now be able to provide a semantic reading of the connective: 'Tonk' means just what it does by the way it figures in our logical reasoning—that when we know (or accept) some proposition we can inferentially combine it with

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[3]Prior (1960)

another to form some 'Tonk'-conjunctive (or "contonktive," if one prefers), and that we can *always* infer it's latter proposition (in this case, Q). These rules, one might notice, also match the disjunction introduction and conjunction elimination rules—rules we take to be meaningful and largely unproblematic—and so, if there is a problem, then it will not be with the rules individually. At this point, however, the problem does become quite clear: if we infer according to Tonk, then anytime we believe anything, or take anything to be a premise, then we can conclude anything. As noted previously, if one finds this view of meaning regarding connectives plausible, then they must also adopt some further meta-logical principle to guide their selection of the rules, or, otherwise, must find good company with Tonk.

Considering the broad applications that these three issues raise, it would seem as though *all* must be addressed if one hopes to present a foundation for logic, its use and truths. Thus, I begin in chapter one by exploring a prominent account which attempts just that.

Paul Boghossian, in his paper "Knowledge of Logic," considers a range of views on logical foundations—particularly, non-factualism, default-reasonable beliefs, and conventionalism—but finds that each position suffers in some manner, and so in spite of its own problems, concludes that we are forced to accept some version of conceptual role semantics as the best option among a problematic bunch. Conceptual role semantics provides us with a way of understanding connectives such that Tonk would properly be ruled out, but it brings with it some important consequences which I will try to show might leave one with a lingering 'bad taste:' the rejection of an epistemic principle, "the principle of the universal accessibility of reasons," and the startling conclusion that the type-1 skeptic *can not* be answered. Subsequently, I will take it that the book must be re-opened on the outstanding issues of other positions.

To that end, in Chapter 2 we will explore Bob Hale's position, presented in his paper "Basic Logical Knowledge," as our exemplar of accounts that take our basic logical beliefs to be "default reasonable." I will attempt to show that this account, and a handful of relevantly similar ones, must contend with a number of strong criticisms, some possibly irredeemable. Of particular note is the problem of epistemic access: in attempt to answer Carroll's Tortoise, Hale finds that one must accept "a species of non-inferential intellectual

recognition—which we may as well call rational insight"[4] to 'ground' a logical argument. What is the nature of this insight? What is it about entailment that we 'recognize'?

From discussion of these issues, I attempt to draw out a number of conclusions (most explicitly in section 2.4) which will motivate an entirely different approach; and so, Chapter 3 will discuss Hartry Field's 'non-factualist' position which both involves a different route to justification as well as a different grounding for logical semantics. I will try to show that what non-factualism appears to strike upon correctly is emphasizing the methodological application of logic to the world; but also, that Field's position falls prey to an issue not unlike that which Boghossian's position faces.

Finally, I question in chapter four what amendments may be made, if any, to bolster non-factualism. I will propose a distinction for Field's notion of an evidential system which will clarify both the non-factualist position itself as well as how one might go about addressing this thesis' overarching problems. Here we will see a variety of points from throughout the thesis raised, and particularly Russell's distinction, once again, about assertion and reference.

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[4]Hale (2002), pg. 298

Chapter 1

Rule-Circularity and Conceptual Role Semantics

The first section of this chapter introduces Boghossian's conceptual role semantics and two constraining principles which specify the relationship between conceptual roles and our justification of our beliefs. In the following sections I show how Boghossian's position addresses our three main concerns, and especially, in section 1.3, I show the usefulness of rule-circular argumentation. There is, however, one preliminary remark to make regarding the relationship between rule-circular arguments and Boghossian's argumentative path to conceptual role semantics.

Boghossian finds that he is led to his position, not simply by its own merits, but rather by the lack of any compelling alternative. Among his critical discussion of competing views, he resuscitates the criticism *of* rule-circular argumentation—originally lodged at Boghossian himself by Gilbert Harman—that "one's warrant for a principle of logic cannot consist in reasoning that employs that very principle."[1] Particularly, Boghossian finds that empirical approaches to logic fundamentally depend on this sort of argumentation and so claims that such approaches are 'no real alternative' so long as one cannot use rule-circular justification.[2]

Subsequently, after all other options have been exhausted and Boghossian returns to what he calls 'the inferential' approach, which *does* use rule-circular reasoning, he gives up some of what makes conceptual role semantics more compelling than the empirical picture

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[1]Boghossian (2000), pg. 232.
  The original context comes from Boghossian (1996) and Harman (1996)
[2]See: Boghossian (2000), pg. 232-234 ("An Empirical Justification For Logic")

(precisely the 'you too' criticism that the logical empiricist needs rule-circular reasoning). Just as he notes the fact that bans on philosophical and argumentative tools 'go both ways,' it would seem that, at least to the limit of inconsistency, so does permission.[3] Consequently, I propose (and will attempt to show in section 1.3) that the sort of rule-circularity he defends can be seen as amenable to a variety of other positions; and this is of particular importance because plausible strategies which deny any circularity at all (rule-circular or otherwise) are limited in number. With that said, we may now turn our attention to conceptual role semantics and Boghossian's position on the justification of logic.

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[3]Boghossian's particular remark on the matter...

"For if we are barred from supposing that reasoning using a given logical principle can reconstruct an a priori warrant for that very principle, are we not equally barred from supposing that it could reconstruct an *empirical* warrant for that principle?" (Boghossian (2000)), pg. 233)"

1.1 Meaning As (Almost) Use

Conceptual role semantics is broadly the view that the meaning of some thing is given by the 'conceptual role' it plays. This notion can be very expressively powerful—the meaning of anything (action, proposition, word, thought occurrence, etc.) is to be given by the conceptual role it plays for a perceiver of that thing—or quite limited in its scope—there is a subset of phenomena which is best or partly explained (leaving open other meaning-avenues) by the conceptual role it plays for one of either an agent perceiving or acting. The historical details surrounding the origin of this theory are hazy, but it can at least be attributed to the family of views regarding "meaning as use."

This should feel in some sense familiar, as it is not too far off from the idea that introduction and elimination rules provide meaning for connectives by specifying how we can begin and end our inferences with them. 'And' means just the inferences possible, given a set of statements, that form their conjunctions; and just the inferences possible, given a set of conjunctions, that dissolve them into their respective conjuncts. It is not immediate that any 'intro/elim' semantics will turn out to be of the conceptual role variety,[4] but if one begins with the idea that meaning tracks differences (or, possible differences) in thought, then it is certainly clear that there must be a 'role reading' of introduction and elimination rules so long as they properly individuate connectives. Otherwise, one becomes committed to the idea that there are things that are properly differentiable from one another *on the basis of their conceptual role* but that do not incur different thoughts in the differentiator.

In other words, one would be committed to the idea that 'and' and 'or,' are different logical connectives to the extent that their introduction and elimination rules determine what different inferences are possible, but that we should expect no difference in the actual inferences, the thoughts or behaviour, of someone using 'and' and some other using 'or.' Of course, it is possible to conceive of such cases where one's reasoning from some premise to some conclusion might be aptly described by a variety of rules, but the contention here is systematic.[5]

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[4]For example, one may be more inclined to read such schematic rules as an instance of structural semantics. See Peregrin (2008) or Peregrin (2017) for more details.

[5]And outside of just the logical realm, one might consider the case of frogs snapping at ambient black dots, confusing them for flies. The conceptual role of flies is such that the frogs snap, expecting food;

Boghossian makes his variation of the theory clear by noting that:

> "Of all the inferences that 'if, then' can and does participate in, a specific subset is responsible for fixing its meaning. Given that subset, 'if, then' means that unique logical concept, *if any*, whose semantic value makes the inferences in that subset truth-preserving."[6]

There are two functioning parts to this: first, that the logical concept has a semantic value, responsible for determining whether or not the rule is truth-preserving, apart from the rule's use by a person; and second, inferences which are not truth preserving do not have their meaning fixed. There is also the important qualification, "*if any*," which tells us that we may infer by a rule (whether it's called 'if, then' or 'Tonk') which does not have any conceptual role at all. In other words, conceptual roles do not determine our actual inferential behaviour, only the meaning of some of our behaviour.

These moves, however, afford Boghossian the opportunity to cash out entitlement in a non-conventionalist manner. Through the principle, (L)—"if M is a genuinely meaning-constituting rule for S, then S is entitled to infer according to M, independently of having supplied an explicit justification for M"[7]—we can say that one is entitled to their inferences in just those cases where their behaviour 'lines-up' with the logical concepts, the meaningful conceptual roles. It should be noted that (L) is stated in a relative manner: "if M is a genuinely meaning-constituting rule *for S*, then..."; despite the seemingly universal condition for meaning, the existence of a concept which makes an inference use truth-preserving, Boghossian states the idea in this weaker form. Momentarily, we will see how 'universality' comes to play a part in Boghossian's position and in addressing our main concerns.

As a final piece to the puzzle, we must find some way of moving from generally being entitled to our inferences, to being justified in our particular inferences. For this,

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and the conceptual role of the ambient dots is not sufficiently different, the phenomena is not sufficiently differentiable, prompting the same behaviour—as if the flies and dots were the same thing. Of course, flies and ambient black dots are far from the same sort of thing, but a conceptual role semantics would imply this is precisely because the phenomena have different conceptual roles for us, which both entails our behavioural differences to flies and dots, and our different thoughts and reasoning about flies and dots. Dretske (1988) provides good commentary for further interest.

[6]Boghossian (2000), pg.248-249
[7]Boghossian (2000), pg.249

we require something more powerful than just (L), and this is where Boghossian believes rule-circular argumentation will come into focus. Though I leave the full explanation of this aspect to section 1.3, it can be said now that there is a distinction between grossly circular arguments and rule-circular arguments; particularly, that rule-circular arguments do not 'assume' the rule *as a premise*, but instead *apply* it in the argument. Consequently, Boghossian concludes by another principle, (RC)— "S's rule-circular argument for a rule of inference M will confer warrant on S's belief that M is truth-preserving, provided that M is a genuinely-meaning constituting rule for S"[8]—that so long as there is a conceptual role for the inference in question (that the inference is a meaningful one), then a rule-circular argument will succeed in taking one from a naive belief about the rule to a warranted one.

In sum, Boghossian's conceptual role semantics seems to give us a substantial reading for the meaning of logical connectives and a way of comparing or explaining our behaviour in relation to logical connectives: conceptual roles exist as behaviour-independent concepts which have a "semantic value" that differentiates our implicated inferences from other inferences. Particularly, it is the property of truth-preservation that separates the meaningful connectives and inferences from those which are not; and when dicussing these meaningful rules, we can construct a justification through rule-circular means. Now, we can explicitly turn our attention to the capability of conceptual role semantics to deal with Tonk and our skeptics.

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[8]Boghossian (2000), pg. 250

1.2   Solutions: Better and Worse

Let's begin with the problem of 'bad connectives.' Tonk appears to be a well-defined connective (from the perspective of introduction and elimination rules), just as any other logical connective is (say, the otherwise uncontroversially accepted 'And'), and yet Tonk trivializes our language. Any system containing Tonk will license one to infer anything from anything else. Consequently, its hard to see what Tonk could have ever meant in the first place, and why we might be justified in using other logical connectives specified in the same manner. So, how might Boghossian's position help with warding away connectives like Tonk without throwing away 'And' or 'If, Then'? So long as we understand 'genuinely meaning constituting' to entail "truth-preserving," then by the principle (L), one is never entitled to infer according to Tonk.

So far, so good; but, one may press, this presents a new dilemma: either (A) this does not stop one from ever having the conceptual role, or the logical idea, specified by Tonk, only their entitlement to their infence is in question; or (B) it shows that we can infer—though not entitled to do so—according to Tonk, without there being a conceptual role at all. In the first case, it seems troubling that we might have conceptual roles which we are not entitled to. In other words, there is a dependency between our actual behaviour and the existence of conceptual roles which would rule out large swaths of what we do (say, any accidental misapplication of 'if, then') as meaningless. And in the second case, it seems troubling because the connection between our behaviour and the meaning-constituting features of our behaviour (properties of truth-preservation, say) are eroded. In other words, we can infer, and distinguish or describe our own and other's inferences, without reference to an 'actual' conceptual role. What then is needed is an account of how conceptual roles arise at all and, subsequently, what is different about the truth-preserving connectives that is more than mere convention.

It is not completely clear what sort of metaphysical view would ground this distinction between meaning-constituting and non-meaning constituting inference rules. On one hand, an avenue available to Boghossian is a view that we might describe as metaphysically loaded, in which some connectives somehow exist in the world—i.e. that there are patterns of inference, some of which have a property of truth-preservation, and meaning-constitution

derives from a particular pattern having a particular property. In this case, there are facts and truths about logic, and the genuinely meaning constituting connectives are genuinely about the world, and (presuming classical logic is correct) the logic we teach with truth tables is a description of these facts. In a sense, this is captured by Boghossian's own comments when he remarks that "there is no proposition expressed by sentences of the form 'A tonk B.'"[9] In what way would the world have to be such that 'A tonk B' was the unique logical idea needed to describe it? However, it is not clear that this is either the view that Boghossian is advancing, nor itself a plausible one. For starters, what sort of experience would one need to have to recognize that 'And' was an appropriate description of the world; and furthermore, *how*, by what faculty, would such a recognition be made?

On the other hand, and in attempt to avoid such metaphysical qualms, an avenue may seem available along conventionalist lines alone. So, instead of appealing to the truth-table 'out there,' it could be said that this is merely a well-functioning descriptive tool. I will not attempt to take up such debates here, only note that this does not help conceptual role semantics; for if it is conventional (by choice) that we appeal to truth-preservation for meaning, then it is at least possible that a different question (say, of monotonicity instead of truth-preservation) could be used to determine which connectives are "genuine" and which are meaning-vacuous.

There is, however, another issue lurking in this discussion of truth as well; namely, the idea that Tonk does not preserve truth. Recognizing the fact that each half of the Tonk rules is itself a well-established and truth-preserving rule—where tonk-introduction is identical to disjunction introduction, and tonk-elimination identical to and-elimination—conflicts with, as Hale describes, "the well-entrenched, and surely correct, thought that we can't pass from true premises to a false conclusion by chaining together steps of reasoning each of which is truth-preserving."[10] At which particular step in the process does truth fail to be preserved? Subsequently, it is difficult to see how, conceptual role or not, taking 'genuinely meaningful' to entail 'truth-preserving' will get one very far to begin with. Are conceptual roles entities which specify individual rules and so Hale is wrong about about the "well-entrenched" idea about truth-preservation, or are conceptual roles entities which

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[9]Boghossian (2000), pg. 251
[10]Hale (2002), pg. 293

mark out tuples of rules?

That all said, Boghossian admits that his presentation of the position is partly an "IOU", to be explained in full in the future, and rightly recognizes the force of many criticisms. If such a story is to be presented, then perhaps conceptual role semantics is plausibly positioned to deal with Tonk. What then of the logical skeptics?

Regarding our type-1 skeptics, the IOU still looms large. Recall that this sort of skeptic questions logical rules to begin with; so, without a story about where conceptual roles come from and why truth-preservation is the correct question to determine meaning, the conversation on this front is doomed to fail. If one begins with the idea that 'if, then' is meaningful because it is truth-preserving *and that this is a matter of convention*, then the skeptic can merely deny that the rule is meaning-constituing on the grounds of different conventions. Insofar as conceptual roles are to be identified in opaque non-public terms (say, 'the language of thought')[11] one lacks any evidence to show the skeptic for exactly what reason some logical rule is meaning constituting. If we add in an explanatory story—say, of the metaphysically rich truth sort—then one is afforded some external basis to which they may appeal for warrant; but this would also require the caveat that whatever so figures one person's conceptual roles is, at least, capable of determining another person's conceptual roles. Otherwise, even with this explanatory story, one must contend with two issues: (1) the skeptic could deny that the formation of your conceptual role was necessary (that whatever the contingent facts are that arise in one's belief of, say, 'And', leads them instead to a belief in 'Tonk'); and (2), if one is capable of forming a conceptual role that another is not, then what's to say that one's belief in 'Tonk' is not warranted by their conceptual roles, roles another person simply has not or could not form?

Boghossian notes this exact line of argument and finds it problematic; not, however, because of the reasoning. Rather, what Boghossian concludes is that to entertain such skepticism *at the outset* is seriously misguided. Instead, one should recognize an underlying

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[11]Boghossian seems to encourage this idea when he says that, regarding the plausbility of (L): "if it is true that certain of our inferential dispositions fix what we mean by our logical words (*in the language of thought*), then it is very plausible that we should be entitled to act on those inferential dispositions prior to, and independently of, having supplied an explicit justification for the general claim that they are truth-preserving." (Boghossian (2000), pg. 250, emphasis mine) That Boghossian is interested in the language of thought presents an interesting and possible path forward for conceptual role semantics, but any such discussion would involve a much broader historical discussion of the philosophy of mind.

and pernicious assumption in epistemology broadly:

> The Principle of the Universal Accessibility of Reasons (UAR): "If something is a genuine reason for believing that p, then,... its rationalizing force ought to be accessible from any epistemic standpoint."[12]

If one holds strong to this idea, that what is a reason for me must be a reason for you, then they will find the type-1 skeptic compelling; and so, to avoid the argumentative doubt about which meaning-constitutive logical property is the 'right' one, will need an answer to the conceptual-role IOU. However, Boghossian denies (UAR) and instead advocates for the idea that there may not be such universal reasons for logic.[13] Consequently, there is both admittance and acceptance that the type-1 skeptic cannot be answered. Whether or not it makes sense to deny (UAR) is food for thought, but at first glance it should seem worrisome. If eschewing this principle stops 'reason-monsters' from setting the evidential agenda for everyone else, then maybe it's not such a bad thing; but if rejecting (UAR) also stops significant conversations about *evidential common ground* from taking place, then perhaps the trade-off is not worth it. What then, of the type-2 skeptic? If someone accepts the use of a logical rule, but does not assent to or accept it's conclusions in practice, can conceptual role semantics say anything about the matter? This involves a much closer look at rule-circularity and how we might move from 'mere entitlement' to actual justification.

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[12]Boghossian (2000), pg. 253

[13]To be clear, Boghossian does not take this to be a full epistemological position for everything; only for those skeptical questions, like the existence of the external world, which create sharp and seemingly unanswerable lines in inquiry.

1.3 The Role of Rule-Circularity

Boghossian proposes that there are five plausible categories for answering whether or not logic can be justified (or more particularly, basic logical rules like modus ponens): total skepticism (no justification), non-factualism about logic (no justification), non-factualism about justification, default-reasonable beliefs, and rule-circular arguments;[14] and considering the failures of the first four, one must look for a method of rule-circular justification. Though Boghossian's particular concern is not as broad as ours, we will see that his construction of rule-circularity is a step-forward to answering the type-2 skeptics; particularly because the warrant afforded by a rule-circular argument directly addresses the infinite regress of hypotheses. In section 1.1 we briefly glossed what function rule-circular argumentation served in Boghossian's overall picture, but now we will need to see exactly what counts as a rule-circular argument, why it may be permissible, and what consequences one has.

Crucially, a rule-circular argument is one which relies on the rule 'in question,' but which does not 'beg the question.' So, a rule-circular argument is one which establishes the conclusion of an inference rule, on the basis of that rule, but not with that rule as an assumed premise. For example, Crispin Wright's rule-circular argument for Tonk:

1. 'P tonk Q' is true iff 'P' is true tonk 'Q' is true   Meaning Postulate

2. P   Assumption

3. 'P' is true   2, T-Scheme

4. 'P' is true tonk 'Q' is true   2, tonk-introduction

5. 'P tonk Q' is true   4, 1, biconditional-elimination

6. P tonk Q   5, T-Scheme

7. If P, then P tonk Q   6, logic

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[14]See Figure 10.2 and pages 235-236 in: Boghossian (2000)

Here, the use of tonk-introduction is never explicitly assumed anywhere in the argument (at least, and importantly, not as a premise); instead, what is being established is that "this template is available to explain how someone for whom inference in accordance with tonk-introduction was already part of their unreflective practice could arrive at an explicit justification for it."[15] And so, a rule-circular argument is really a general strategy for explaining how an inference rule works, and implicitly why (because of it's truth-preservation) it will continue to work: "what we have is an argument that is circular only in the sense that, in purporting to prove the validity of a given logical law, it must take at least one step in accordance with that law."[16] The broad idea here is that a rule-circular argument is an explanation of a rule, it makes explicit the function of a rule, but is not a persuasive argument because it relies on the prior acceptance of the rule.[17]

It is worth immediately pointing out that while Boghossian acknowledges that rule-circular arguments can be posed for any connective, and as we just saw, Tonk included, he does not want to allow complete freedom in their use; and so, he provides much needed buffer in the construction of his principle (RC):

> "(RC) S's rule-circular argument for a rule of inference M will confer warrant on S's belief that M is truth-preserving, provided that M is a genuinely meaning-constituting rule for S."[18]

Now, it would seem, that we can answer the type-2 skeptic without giving up ground to all connectives. A rule-circular argument provides justification for our conclusions by a rule of inference so long as that inferential pattern is "genuinely meaning constituting." If Tortoise were to ask for a further hypothetical, the rule-circular-arguer could refuse to entertain the regress on the grounds of the rule's validity being proven; Achilles could respond by saying 'look you have accepted that modus ponens is a valid inference, and so you can entertain as many hypotheticals as you want but it will not matter—"one step" in accordance with the rule is all that was needed to show this conclusion *must* be right.' This will be an important tool to keep in our pocket going forward, but note that in it's current form, the

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[15]Boghossian (2000), pg. 247
[16]Boghossian (2000), pg. 245
[17]This distinction originally shows up in Dummett's work as the difference between 'pragmatic' and 'vicious' circularity. See: Dummett (1991), especially Chapter 9.
[18]Boghossian (2000), pg. 250

success of rule-circular arguments depends upon the same problematic story from earlier: how exactly do we know when a rule is genuinely meaning-constituting? The visage of our 'IOU' comes into focus once again.

When discussing the source of entitlement, Boghossian rightly confronts this exact line of questioning:

> "What makes a rule meaning-constituting? This is one of the questions that still awaits a definitive answer. My present concern, however, is just to emphasize that our problem about our entitlement to employ a rule of inference *reduces* to that problem, a problem that any conceptual-role semantics faces."[19]

And so what we can take away from this, is that (RC) is not a strategy solely related to conceptual role semantics. The principle (L) tells us that we are entitled to infer by genuinely meaning-constituting rules even if we have not gone on to show their validity or provide some other justification—that is, (L) tells us which rules we should want to construct rule-circular arguments for. Unless it can be shown that the only way to make a rule meaning-constituting is through the conceptual role that has some 'semantic value,' then it would seem that both (L) and (RC) are really general strategic moves available to a variety of positions. The questions that follow, among others, are which positions, how, and why? However, it is far from the present concern to attempt to answer this in detail. What should be noted is that unless another epistemological position contains some other principle, call it (NoRC), which states 'if M is an inferential rule for S, meaning constituting or not, then S is entitled to infer according to M, *only* when an independent and explicit justification for M has been provided,' then the rule-circular approach is 'allowed.' This is of importance, if only, because the explanation which rule-circular arguments afford make quick work of the type-2 skeptic and it is in our interest, then, to find other positions compatible with rule-circular argumentation.[20]

To conclude, Boghossian provided us with an argumentative strategy for dealing with Carroll's Tortoise, but failed to provide a compelling account of what it meant for some

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[19]Boghossian (2000), pg. 250

[20]Authors may rightly express doubts or concerns about the use of rule-circular argumentation, but these hesitations should not be confused with genuine incompatability. Avoiding the use of a tool is, of course, quite different from being unable to use some tool.

logical rule to be "meaning-constituting." Subsequently, the attempt to rule out Tonk was undermined and the type-1 skeptic unanswered. These further issues followed entirely from postulating a conceptual role which fixed the meaning of connectives, and it was shown that neither (L) or (RC) were implicated in the problems. Now, the following two chapters will explore a couple of alternative epistemic ideas which capture two broader strands of approaches to the justification of logic. The first will primarily focus on Bob Hale's idea of the 'minimal inference kit,' and the latter, Hartry Field's non-factualism about logic. I will attempt to show what these positions are and how they differ; what the problems with the views are; and whether or not they are amenable to rule-circular argumentation, so that we may come to find an adequate answer to all three of our problems.

Chapter 2

Logic with an Epistemological Foundation

Five key claims differentiate Hale's justification of logic:

1. That logical knowledge is "*a priori* knowledge of a *conceptual* necessity."[1]

2. That we must accept a principle which underpins what it means to understand something; namely, that acceptance of logical concepts is necessary for understanding them.[2]

3. That the minimum standard of acceptability for a logical rule is that it be sound, that it will never lead from true premises to a false conclusion.

4. That we must accept a principle which explains our entitlement; namely, that one is entitled to a logical belief when that belief is "immune to rational doubt."[3]

U. That rule-circular arguments are not capable of justifying one's use of a logical rule.

The first item can be better explained by saying that there are facts about our logical connectives, like their being able to preserve truth or not, which we come to know apart

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[1]Hale (2002), pg. 283

[2]We focus on logical concepts here for two reasons: first, both Hale and this thesis are primarily concerned with logic; and secondly (and more importantly), it is not clear that Hale believes that this principle will apply to all concepts or only those concepts outlined by the first item. There is a much broader reading of "acceptance as understanding" which would implicate discussion of 'slabs' and 'chairs' and take us full course into "meaning as use" but this is not clearly what Hale has in mind. Later, I will drop specific reference to logical concepts, but this a matter of convenience—one may continue to read this principle as always and only referring to logical concepts.

[3]Hale (2002), pg. 304

from any sort of empirical discovery. These facts are significant because, in modal terms, they stand in a necessity relationship to all possible sets of principles (or, axioms, if one prefers) and their negation stands in no possibility relationship to any possible sets of principles.[4] In other words, these facts about the connectives, like their truth-preservation, are *True*—they are unchanging, immutable, indefeasible, could not be any other way—and any doubt about these facts, as a priori concepts, while possible to be raised, could never be substantiated. This is not just to say that 'facts of the matter' lead us to say these concepts are true, but that it is by the nature of the concept itself that it is true.

The principle of the second claim, that acceptance is necessary for understanding, tells us that if one properly understood some concept, then they would behave in accordance with it. In the realm of logic, what Hale is after is a reading of logical connectives such that if one can be said to properly understand what "if, then" means, for example, then they would not deny the conclusion in a modus ponens argument—they would behave in accordance with it. As foreshadowing, then, "acceptance as understanding" is a principle aimed to discount the type-2 skeptic: how could one claim to know what the conditional means and, when presented with a well-formed modus ponens argument, refuse to assent to its conclusion? We will also see that this principle directly addresses, more generally, those who would doubt the sorts of conceptual necessities Hale takes basic logical knowledge to be.

The third item tells us by what means we will differentiate "genuinely meaning-constituting" rules from 'meaning-vacuous' rules (to use Boghossian's distinction). Hale argues that a truth-preservation criterion will not adequately bar us from using connectives like Tonk (for the Tonk rules are comprised of two otherwise accepted and truth-preserving rules), but that when we turn our attention to soundness, we will be left with a much more restricted set of connectives. More particularly, the soundness of many rules can be proved from the assumption of a much smaller set of rules, a 'minimal kit'—the rules for the

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[4]This technical definition is intended to capture Hale's discussion of those concepts which may be relatively necessary compared to absolutely necessary; and the use of 'principles' is intended to capture the notion of "laws" which make sets of premises. For example, it may be that some proposition p *must* be true, but this is because of 'the laws of physics;' and so taking the laws of physics to be represented by ϕ we would say that p is "ϕ-ly necessary". See: Hale (2002), pg. 280-283 for further detail. However, the reader may gloss this understanding of absolutely necessary in favour of "could not be any other way" and do just as well.

conditional operator and universal quantification. Of course, one may note that this leaves modus ponens and quantification as assumed, but this is where item four comes into play. One is entitled to an inference patter if that pattern is immune to doubt. The picture to come will try to show that the minimal kit of rules satisfies the sort of conceptual properties of item one, and that then concepts of the sort item one specifies satisfy the conditions of item 4.

Finally, 'item U' tells us that rule-circularity is a seemingly unsatisfactory approach to justification. I mark this claim separately because while Hale advocates for avoiding rule-circular argumentation, it is not clear that he could not employ some principle like Boghossian's (RC). Particularly, Hale presents three complaints that one must wrestle with. First, it is not clear that the rule is not being 'assumed' and so that it is not vicious circularity *when we focus on soundness.* Here, the worry is that proofs of soundness, say for modus ponens, depend upon the soundness of modus ponens; and so, an assent to the rule as sound is already being taken for granted.[5] Second, it is not clear that rule-circularity is not viciously circular when we focus on knowledge, when we focus on how we come to know rules. Here, the worry is that the explanatory aspect of rule-circularity does not provide us with any epistemological footing for our use of the rule, it merely explains our coming to a conclusion. And third, it is not clear how we might constrain rule-circular argumentation. Here, the worry is that we will allow a justification of bad connectives if we do not have some further specification (and what could that specification possibly be?) for rule-circularity.[6]

It is important to recognize that these criticisms are not new to our discussion of rule-circularity. In the case of soundness what we really have is a special case of the circularity generally—all rule circular arguments require at least one step with the rule. That we should be careful about soundness is a product of Hale's position on soundness proofs being the correct tool for justifying rules *and his own concern* that this will involve circularity. When focusing on the circularity in 'knowledge,' we are really calling into question the explanatory vs. persuasive distinction to begin with—the difference between a rule-circular argument explaining away our regress of hypotheticals, and a rule-circular

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[5]Note, one might reasonably read this as Hale invoking the type-1 skeptic. Boghossian asked for only "one step" in accordance with the rule, but this, to Hale, is already begging the question.

[6]See: Hale (2002), pg. 285-288

argument convincing a type-1 skeptic. Yet, a rule-circular argument *can be* restricted to the narrow use of explanation and justificaton. And finally, Hale's concern for constraining rule-circular arguments we have seen come up explicitly in the construction of Boghossian's (RC) already. This criticism would only apply in cases where one did not include the "genuinely meaning-constituting" aspect.

In summary, Hale's position goes something like this...

> One is entitled to their logical belief when it is immune to doubt. This will mean that one is only entitled to those beliefs which are a conceptual necessity—a priori and inconceivably, impossibly false. Those logical beliefs which are conceptual necessities are the one's which must be assumed to put forward proofs or make arguments about other logical beliefs. In other words, one will always be entitled without qualification to modus ponens and universal quantification introduction, because these are the only rules which cannot be proved without assumption.[7] And if someone were to *attempt* to doubt such a logical belief, they will really have shown themselves to misunderstand the belief; for if they grasped the meaning of the belief, then they would have acted in accordance with it. Finally, no route seems available by rule-circular argumentation.

Now, then, we may turn our attention to how this position deals with our guiding issues.

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[7]Admittedly, Hale also seems to think that the strategy of a reductio should be included in this set, but recognizing the discussion of negation to be out of scope, sticks only with quantification and the conditional.

2.1 Problems (Two Different Ones)

In similar fashion to the first chapter, let's begin with Tonk. How does Hale's view ward off problematic connectives? There is a trivial sense in which Tonk fails to be discounted by our gloss of Hale: of course it could be used to prove things about other logical beliefs—one literally can make a tonk-argument—but this would not put Tonk on the same playing field as other connectives, like the conditional, for two reasons: (1) it is not clear that Tonk is a conceptual necessity; and (2) it is not clear that, if we restrict our interest to proofs of soundness, that Tonk is a practical necessity. What I mean to point out here is Hale's idea that whatever connectives we are going to accept *without a supporting explicit argument* should be "indispensable."[8] To see how this works, we can examine Hale's argument for the unsoundness of Tonk:

1. Tonk-intro allows you to make any inference of the form 'A, so A tonk B'

2. If the inference: 'p, so p tonk q' is of the form 'A, so A tonk B', then tonk-intro allows you to make it

3. The inference: 'p, so p tonk q' *is* of the form 'A, so A tonk B'

4. Tonk-intro allows you to infer 'p tonk q' from 'p'

5. Tonk-elim allows you to make any inference of the form 'A tonk B, so B'

6. If the inference: 'p tonk q, so q' is of the form 'A tonk B, so B', then tonk-elim allows you to make it

7. The inference: 'p tonk q, so q' *is* of the form 'A tonk B, so B'

8. Tonk-elim allows you to infer 'q' from 'p tonk q'

9. Tonk-intro and tonk-elim allow you to infer 'q' from 'p'

10. The tonk rules together allow you to derive any conclusion from any premise

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[8]Hale (2002), pg. 299

11. Hence, Tonk is not sound

Lines [1.] and [5.] are meaning postulates for the rules of Tonk, and every other line is either an instance of universal instantiation or one of the conditional's rules. Hale's idea in working through this proof is to show that "*any* vindication of a doubt about the conservativeness (or, more generally, the soundness) of *any* rules of inference must involve reasoning which doesn't use those rules, but uses *some* other rules instead—rules whose reliability is assumed in that reasoning;"[9] and while it is not immediately obvious that modus ponens will always be the rules needed to prove soundness for any other rule, Hale contends that "any rule(s) of inference whose soundness we may wish to consider will—or so I think we may assume—be both *general* and *conditional*—general, in the sense that their explicit forumulation tells us that a conclusion of some specified general form may be drawn from premises of some specified general form, and conditional, in the sense that they tell us that *given* premises of the specified form, a conclusion of the specified form may be drawn."[10]

The result is a "minimal kit" of inferences comprising of the conditional and universal quantification, which must be, in some sense, taken for granted, since any attempt to prove their soundness will be circular (since all proofs of soundness are conditional and general); and note, this kit does not include Tonk, for there is little sense in which Tonk will be "indispensable" to proving soundness. So far, so good; though it would seem that both skeptics have a fair bit to say on the matter. Beginning with the type-2 skeptic, what might Hale then say to one who accepts some rule, say the whole 'minimal kit,' but refuses to assent to the conclusion of one of its applications?

Regarding this issue, the principle of "acceptance as understanding" makes quick work of Carroll's Tortoise: any skeptic simply does not understand the rule they are doubting. It is a necessary condition of their properly understanding the rule that they accepted it, and they doubted it; so, they did not accept it; so, they did not understand it; so, it would seem, their doubt should not be taken seriously. On this principle, Tortoise should consider giving up Euclid for football. Before declaring the matter dealt with, however, exactly how this principle is functioning will be worth a moment of close inspection. Particularly, there

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[9]Hale (2002), pg. 296-297
[10]Hale (2002), pg. 299

appear to be two issues: how do we square acceptance as understanding with Hale's position against Tonk; and, how do we deal with the anomolous cases of competent dissidents?

For the first issue, we can break down acceptance as understanding into two separate theses: the stronger, that acceptance is sufficient for understanding; and the weaker, that acceptance is constitutive, but only necessary. Owing his argument against the stronger to Paul Horwich, Hale points out that if acceptance were sufficient for understanding, then we would be 'opening the flood-gates' on logical truths and connectives, since it is at least conceivable that one might accept Tonk no matter how unintuitive the inferential rule is. Consequently, Hale urges the weaker notion, that acceptance is 'merely' necessary. In this way, there is compatability between this view of meaning and the restriction of the viable inference rules to only those which are sound, as connectives like Tonk are shown not to have a genuine meaning (what would it be like for someone to accept Tonk?), but connectives like 'if, then' and 'and' do. This is not to say that 'and' could be assumed unproblematically, like 'if, then,' but instead that a non-circular soundness proof, *using the minimal kit alone*, could be provided for 'and' and this would count it as a genuinely meaningful connective. However, what is needed now is a way to deal with those who would doubt rules we want to protect.

The thrust of acceptance as understanding is that one who does not behave in accordance with the principle is mistaken about the logical belief in question, but potent doubts often come from those who understand the belief in question. For instance, Vann McGee's proposal for a counter-example to modus ponens might be swiftly shrugged off as the misunderstandings of a logical apprentice; but it is precisely his accomplishments and thoroughness with the topic that warrants serious consideration of the so-called 'counter-example.'[11] So, one might consider the following (of many other examples McGee provides):

> I see what looks like a large fish writhing in a fisherman's net a ways off. I believe
>> If that creature is a fish, then if it has lungs, it's a lungfish.
> That, after all, is what one means by "lungfish." Yet, even though I believe the antecedent of this conditional, I do not conclude
>> If that creature has lungs, it's a lungfish.

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[11]McGee (1985)

Lungfishes are rare, oddly shaped, and, to my knowledge, appear only in fresh water. It is more likely that, even though it does not look like one, the animal in the net is a porpoise.[12]

The problem here—why one would not assent to the conclusion 'if that creature has lungs, it's a lungfish'—is due to the nesting of conditionals. When performing a 'translation' of beliefs or language into logic, arguments of the form $\ulcorner$*If* ϕ, then *if* ψ then $\theta\urcorner$, require one, at least sometimes, to assent to the truth of otherwise unintuitive or implausible beliefs. McGee reasons that this is because our own practices reflect a further 'law of exportation' which states that...

$\ulcorner$*If* ϕ and ψ, then $\theta\urcorner$ entails $\ulcorner$*If* ϕ, then *if* ψ then $\theta\urcorner$.

and so there is a "tension between modus ponens and the law of exportation. According to the classical account, which does not recognize any conditional other than the material, both are valid; but we will not expect them both to come out valid on any nonclassical account."[13] Hale addresses this sort of concern directly and concludes that if someone can intelligibly raise the doubt to begin with, then *really* the thing they assented to and accepted was never quite the thing so doubted.[14] In this case, that the doubt was never about classical modus ponens, but about our non-classical use of natural language and the relevant conditional operator for that.

So, regarding McGee's counter-example, we would say that there is an unrestricted version and a restricted version of modus ponens, where the restricted version cuts off those arguments which would "essentially involve as major premises conditionals whose consequents are themselves conditional."[15] Then, any doubt about modus ponens will be of the unrestricted version, and what was really *meant* by modus ponens was the appropriately restricted version all along.

This certainly gets one around the problem: any genuine doubt means you never had genuine meaning for the thing doubted to begin with; but it is difficult, then, to see how this principle might help address Carroll's Tortoise. Given the type-2 skeptic,

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[12]McGee (1985), pg. 462-463

[13]McGee (1985), pg. 466

[14]See: Hale (2002), footnote 18

[15]Hale (2002), pg. 291 in footnote

we either shrug them off as not understanding the principle in question, or we admit their hesitation but claim that the principle so explicitly stated was never the principle in question. Behind every explicitly stated rule *that could be questioned* would be the unstated and 'real' meaning. In practice this might likely not amount to anything,[16] even if one was to move towards another method of fixing the meaning—be it truth conditions or 'conditions of correct assertion'—it would not change the fact that certain logical concepts were of *conceptual necessity*; but it would leave open the curious fact that those logical beliefs taken to be a priori and necessary are subject to change, insofar as we thought we made reference to them, 'later.'[17] This, however, should not be seen as fatal to Hale's position, only that it raises some discomfort given the seeming ineffability of those very concepts we take ourselves to be entitled to.

This discussion raises one further point; namely, that Hale presents two distinct projects that one might attempt to solve:

A : Explaining *how we can come to know* that basic rules such as *modus ponens* are sound.

B : Explaining *why it is not possible intelligently* (i.e. clear-headedly and coherently) *to doubt* the soundness of basic rules such as [*modus ponens*].[18]

The principle of 'acceptance as understanding' only seriously applies towards project B. The 'ineffability' so discussed, exposes the inability for our assent through practice to explain how we grasp logical concepts; but this is really no price at all to pay, it was never Hale's intent to have the principle of acceptance as understanding solve all of the issues. So far, then, we've seen this non-rule-circular position make quick work of the issues at hand; however, our type-1 skeptic will require a little more effort to handle.

In the following section I will spell out how Hale might come to answer this skeptic, but also what problems this commits us to; and particularly, I will show that we are left with an IOU that is no better off than Boghossian's. Then, in section 2.3 I will attempt to relate Hale's position to a broader category of positions called "default-reasonable beliefs."

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[16]Indeed Hale seems to think so when he claims that everything in the paper following his discussion of McGee could be "recast" to the better formed resrictred modus ponens.

[17]Say, by further reflection, or even a posteriori experience.

[18]Hale (2002), pg. 289

In doing so, one may note that the narrow discussions thus far are more broadly applicable than they first appear. Finally, in section 2.4, we will take stock of what issues are on the table and where progress may be made.

2.2 Intellectual Recognition

Before setting off into the nuances of Hale's theory, it is worth asking why the type-1 skeptic may not be immediately answered by the 'acceptance as understanding' principle. If the type-2 skeptic could be disregarded as not knowing what they were talking about when they claimed to understand modus ponens but refused to assent to its conclusion, then why can't one say the same for the type-1 skeptic who refuses to accept modus ponens to begn with? Recall, that in the discussion of Boghossian, the type-1 skeptic's doubt could be understood as a question about whether or not the rule in question was genuinely meaning constituting. If what makes a rule meaningful is just one's acceptance of it, then we run into the strong view that Horwich criticized; and if we go with the partly necessary view that Hale proposes, then there must be some further way of fixing the meaning.

Here is the crux of the issue—for if Hale were challenged, 'and why modus ponens? how is modus ponens "genuinely meaning constituting"?', there is no clear story. Surely introduction and elimination rules would play a part; one's acceptance of the rule (and so the behaviour that shows acceptance); and the aspects of the rule that might make it conceptually necessary, i.e. its soundness; but seemingly the picture that these conditions give together still does not provide a clear answer to our type-1 skeptic, for, I argue, this instance of the skeptical worry is pushing on a prior step in the argument. Unless one can provide a positive argument for modus ponens, then the negative argument (that it's soundness could not be doubted), will do little to unseat the skeptic—if they take themselves to know some other connective, then why should they abandon their logical system? And this is, in effect, to push on Hale's first project, 'project A.'

Unfortunately, there is no quick answer. Hale 'shelves' the question of how we may come to know logical soundness, banking on the hope that in answering 'Project B' we may come to have some idea of how to make progress.[19] So, then, what is the supposed lesson of project B?

I propose that there are two ways of understanding Hale's argument: on the one hand, and closer to the spirit of Hale's paper, there is something particularly special about those

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[19]Hale (2002), pg. 290

rules which appear in our minimal inference kit, and we come to know of these rules 'first;'[20] on the other hand, the relevant logical facts are, in a sense, 'beyond us' and so the sort of knowledge that we are talking about is the high bar we never really obtain.

The second interpretation is quite a liberal reading of Hale. Indeed, it is so far from the thrust of the paper, that it barely could be seen as the same position; but, it is worth mentioning, if only to note the landscape of available positions. In saying that logical facts are 'beyond us,' what is being noted is that the conditions of generality and necessity make logic transcendental. Perhaps it is true that "some of us, at least some of the time... are inclined to believe that we know" some logical fact,[21] but a minor lesson that could be had from Carroll's Tortoise, Tonk, and discussions around the justification of logic, is that this feeling of certainty, of knowing, is contingent to our practice. Alerting one to a possible counter-example, or asking them to justify their use of some taken-for-granted logical inference, brings about a whole suite of behaviour—constructing proofs, providing a rule-circular argument, attempting to find further counter-examples, performing a reductio, etc.—which Hale recognizes as being unsatisfactory for showing how we have the knowledge we do. Thus, the position would look something like this:...

> The minimal inference kit is no more special than any other and the fact that it is indispensable to proving soundness is an interesting property which may be used to explain why it is *more difficult* (maybe so much more so it seems impossible) to doubt than any other set of inferential patterns. It may be the case that, for example, we are beholden to conceptual limits—just the ones that map to the logical facts—but this will do little for explaining any sort of 'knowledge,' since we are not reasoners 'in the limit.' One's doubts about logical facts are entirely reasonable insofar as we have no special access to the transcendental

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[20]To spell this notion of 'first' out a little more: In some sense, because the minimal inference kit rules are indispensable to our reasoning about (minimally, the soundness of) any other logical idea, there will be very little to any epistemological story *before* this inference kit comes into play. Perhaps we might have certain intuitions or beliefs which are otherwise unconstrained, but once we talk of knowledge, however we might attempt to do so, *these* inferences will come first. Thus, the goal is to tell a story which ensures that once we can say some agent has knowledge (at least of anything general or conditional), then whatever that knowledge may be, it *comes with* the minimal kit—whether that means that prior knowledge of the kit was used, or that the agent learned both things simultaneously, or that there was never any other physical possibility, that we just do think with those rules that are of conceptual necessity.

[21]Hale (2002), pg. 279

truths. In just the way that genuine doubts expose our accidental reasoning about the meaning of connectives, 'acceptance as understanding' shows we *are mistaken* about logical truths given our inability to reason transcendentally; yet, all but the most unmovable skeptic will accept the overwhelming amount of logical practice and argument that we can contingently provide.

Now, though the above interpretation is entirely made up of the key ideas of Hale's position, one can see where the divide lay: this doesn't seem to give us knowledge at all! That our practices are moved by the invisible hand of logical reason seems to explain away the possibility of knowing otherwise without telling us that we actually know anything. Furthermore, Hale finds that "appeals at this point to self-evidence or to rational insight—to a supposed capacity to discern things by the light of reason—... seem to amount to relabeling our problem rather than making a significant contribution towards its solution."[22] How else, other than the light of reason, might one close the gap between transcendental conceptual limits and actual reasoning practice? This leaves us then with the first interpretation, that there really is some priority to those inferences in our minimal kit, and that they will then figure in an epistemological story somehow and before other sorts of knowledge.

It seems to me that there are a variety of such epistemological stories which would get at something similar to what Hale is looking for, but Hale concludes the paper with the thought that there may be no inferential 'gap' between explaining how something is impossible to be doubted and how it can be known (there would certainly be a gap, just not one so structured by inferential reasoning), and that, instead, we may bear out the conditions for knowledge in terms of beliefs: "To know that p is to have a true belief that p and to be *entitled* to that belief... she may satisfy the entitlement condition by believing something it is impossible—and so impossible for her—rationally to doubt."[23] Of importance to note about this condition is the fact that the impossibility of doubt is not relative to the believer, it is a fact beyond the believer that they cannot doubt p and so it is this fact which independently justifies, or gives entitlement to, the belief; and so too, it should be noted, is the fact that p is true. So, Hale has provided a justificatory

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[22]Hale (2002), pg. 284
[23]Hale (2002), pg. 302-303

framework for individual's beliefs which, in a sense, does not actually rely on their believing at all. Universal quantification and conditional inference seem to fit the bill on true and undoubtable beliefs, but this is still no story at all about *how we* come to these facts.

Earlier in the paper, Hale quietly attempts to address part of this concern. In a footnote attached to the discussion of the proof of Tonk's being unsound, Hale ponders by what right we can claim the truths of premises [3.] and [7.][24] Though their truth may be "obvious," providing a compelling answer of how we know this is problematic. Hale considers it implausible for knowledge of their truth to be got inferentially, for "quite apart from the difficulty of coming up with any even remotely plausible premises from which such statements might be drawn as conclusions, it seems clear that any such inferential answer would set going a vicious infinite regress, of a piece with that into which Carroll's wily Tortoise enveigles the unwary Achilles."[25] The idea here is precursor to the point of indispensability, and so the infinite regress cited is just the sort found in a rule-circular argument. This said, Hale also forwards some preliminary commentary on how we may know the truth of the inference in question; particularly, that he "can see no alternative to acknowledging that what is involved here is a species of non-inferential intellectual recognition—which we may as well call rational insight, and which has an indispensable role to play whenever we operate with rules of inference." This is not meant to be taken in quite the same way that sense-datum theorists will claim perception is non-inferential, but instead, is restrictively taken to mediate "recognition of particular inferences as exemplifying general rules."[26]

So, how might this 'restricted' rational insight help in getting us from our believing to conceptual necessary facts? If, as Hale indicates here, it is a merely a piece of rational thought that we may move from particular instances to generals, and from generals to particulars—that is, *employ universal quantification*—then we have some way of framing our beliefs in accord with the sort of conceptual general necessity that logical facts are taken to have despite the nature of our contingent and non-transcendental thought;[27] but,

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[24]For the reader's reference:

    [3.] The inference: 'p, so p tonk q' *is* of the form 'A, so A tonk B'

    [7.] The inference: 'p tonk q, so q' *is* of the form 'A tonk B, so B'

[25]Hale (2002), pg. 298, footnote 24.
[26]Hale (2002), pg. 298, footnote 24.
[27]And one may note here that this is is now a reading much closer to the one we inititally took to be

it would seem, this also takes us far away from the humble characterization of indispensable already taken on board. It is no longer just that we cannot doubt universal quantification, but instead that the overall characterization of thought depends upon this 'minimal kit.' Now, perhaps, our minimal kit is even smaller than supposed and what we have really landed upon is a new criterion with less baggage; but this would be to confuse the role of the claims. The 'minimal kit' arose as those connectives which we had to assume on pain of circularity. To say that our recognition of logical facts depends upon just the inferences we cannot doubt, precisely because we cannot doubt them, and we cannot doubt them because we recognize, in argument, their indispensability, precisely because of the logical facts uncovered in the process, is as circular as any inferential argument.

What then, is the type-1 skeptic left with? It would seem, an IOU on how we come to know conceptual necessities. Just as with Boghossian, the rest of the picture may hang together nicely enough to address the type-2 skeptic and limit our connectives, at least enough, to rule out Tonk, but the type-1 skeptic is given only an outstanding epistemological story.

In the following section, the connections between the view just expressed here and "default-reasonable beliefs" will be explored. Particularly, I will try to show that the epistemological IOU is much the same as Hale's and so we can begin to rule out an even broader class of views which take this approach. Then, in the following section, we will return to discussing the specific conclusions from the discussion of Hale in these past sections, and Boghossian in the past chapter.

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far from the spirit of Hale's position.

2.3 Default Reasonable Beliefs

This section will draw comparisons between Hale's view and the broader category of views dubbed 'default reasonable beliefs.' I will attempt to show that the relationship between 'intellectual recognition' and 'default reasonableness' functions quite the same way; and so consequently, that the same issue with the type-1 skeptic will appear. Following Boghossian's characterization of "default reasonable beliefs,"[28] they are those beliefs which are "simply 'default reasonable,' reasonable in and of themselves, without any supporting justification... It is reasonable to believe them, but *not* because there is some positive *ground* by virtue of which they are reasonable."[29] In other words, they are beliefs which are justified because they are prima facie reasonable—no more and no less need be said. Though this is not a fundamental part of the position, Boghossian continues to spell out his take on it by appealing to a further condition on grounds of plausibility; particularly, that the sort of justification such beliefs are given is that they are "presumptively but defeasibly justified."[30]

Now, Hale certainly never indicated that *anything* could serve as a basis for logical knowledge. To claim that would be an interpretative mistake of the highest degree; but what discussion of "intellectual recognition" reveals is that we have justification for believing in universal quantification, for example, due to it's 'rational obviousness'—little positive ground indeed. That said, Boghossian's initial characterization is attempting to pick up on what he takes to be a broader strategy or trend among many others, and so there are a variety of ways we might take something to be default reasonable...

1. "A default reasonable belief is any belief which, by virtue of being presupposed in any justification that a thinker might have, is neither justifiable nor refutable."

2. "Beliefs that are default reasonable are those beliefs that a thinker finds 'self-evident'."

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[28] His discussion of the matter does a good job of joining together many positions. There are others, particularly Hartry Field, who discuss the issue more directly and 'on its own terms;' but their summary is less rhetorically useful and raises many further concerns. We will return to Field in Chapter 3 when discussing non-factualism, and there some of his views on default reasonable beliefs will also be presented

[29] Boghossian (2000), pg. 238

[30] Boghossian (2000), pg. 238-239.

3. Default reasonable beliefs are just those beliefs "such that, having those beliefs is a condition for having one of the concepts ingredient in them."

In these three accounts, Boghossian casts a wide net for what may be considered a 'default reasonableness' approach to the justification of beliefs. I will not take any of these to be 'the canonical approach,' but it can be seen that some of these are more, and some less, amenable to Hale's approach—there is a family resemblance between all the positions.

The first characterization gives us one condition by which some belief is default reasonable: that the belief be 'presupposed in any justification a thinker might have;' and, by consequence, the standing of this belief then is 'neither justifiable nor refutable.' We might see this as very closely related to Hale's own position, as the sorts of beliefs which are undoubtable, those within our minimal kit of inference, are the ones that we can use to supply justifications for other logical concepts (via soundness proofs), and which cannot be refuted (doubted), or justifed themselves (since this would invoke circularity—using modus ponens to prove the soundness of modus ponens).

There is a further way of understanding how a belief may be 'presupposed in *any* justification' and this would make this view of default reasonable beliefs closely related to indispensability. One might, for example, take 'any justification' to include those justifications which fail, or the general acts which, through their performance, grant justification. Stretching this understanding then, one is only a 'stone's throw' from the idea that this condition is really calling for those beliefs which are presupposed in our most general thought—those beliefs which are indispensable to our thought. Wright forwards a clear conception of this when claiming "a proposition [is] a cornerstone for a given region of thought just in case it would follow from a lack of warrant for it that one could not rationally claim warrant for any belief in the region."[31] Cornerstones here are those beliefs which we could then not do without. Note, however, that this is both a far different view from Hale's and a much stronger reading of the default resonable condition.[32]

Hale is not after the idea that we literally cannot think without some logical concept, some conceptual necessity—certainly acceptance as understanding shows that we are not

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[31]Wright (2004), pg. 167-168
[32]There is some promise for indispensability to answer the type-1 skeptic, and we will see this come about again in chapter three, but not in the way implicated here. To fully discuss Wright's conception of cornerstones is far out of the scope of this thesis.

ideal reasoners and can misunderstand logical concepts—only that we cannot rationally doubt those certain concepts. And here is why the skeptic's challenge remains: there is some non-inferential gap that must be jumped to get to knowledge of these logical concepts,[33] and without this explanation there is no 'positive ground' to make one employ modus ponens, quantification, or whatever else might be in the minimal kit.

What of the idea that beliefs are default-reasonable just when some thinker finds them 'self-evident?' I take it that there are two ways of discussing this; namely, charitably and uncharitably. The uncharitable reading would literally have it that any belief could be so justified so long as there is someone who is willing to think it evident. Consequently, we would be discussing a position whereby no belief is ruled out prior to investigation as there is no *principled* way to distinguish them—one could always imagine a person who could possibly believe the idea in question no matter how unjustifiable it seems to anyone else. Whether or not there is a person who then assents to some particular belief will be our basis for claiming the belief so justified, but otherwise, one would have to remain agnostic about the rest. Yet, if Tonk seemed problematic because it allowed us to pass from any premise to any conclusion, because it forces us to accept that every sentence is true if any sentence is true, one should be similarly skeptical of the position that all beliefs are either justified or not not justified. In any case, this is the less interesting of the two readings: what then, is to be made of this idea if we are charitable interpreters?

It would seem as though there must be some reading of 'self-evident' which is not so 'radically subjective.' For example, we might take self-evident to mean undoubtable; and if this is the case, then what we really have is Hale's position (and the problems that come with it). By virtue of one's intellectual recognition they have afforded themselves the minimal inference kit, which is neither justifiable, except just in virtue of their intellectual recognition, nor refutable, since the belief in question is of conceptual necessity. Another strategy might be to take self-evident beliefs to be constrained by some sort of plausibility condition, like Boghossian's suggestion for their being "presumptively but defeasibly justified." However, this would take us closer to the uncharitable reading and so

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[33]There may be hope for merging this view of default reasonable beliefs with a rule-circular argument for justification, but as we saw with Boghossian's positions, even this 'inferentialist' approach will not satisfy the type-1 skeptic. The view may be default reasonable, but only to the extent that it's being presupposed is because of its being genuinely meaning-constituting.

raise concerns about what is really significant in claiming some beliefs being so justified. There is potential in this argument if one can provide a set of critera by which logic may be empirically overturned, but I will not take this discussion up here. What can be said is that, at the least, this is no obvious position and that *if* logical concepts are the sort that Hale outlined, of conceptual necessity, then it is difficult to see how they may ever be defeasible.[34]

This leaves Boghossian's last characterization of default reasonable beliefs; that they are those beliefs such that "having those beliefs is a condition for having one of the concepts ingredient in them." The idea here is that for one to even be said to have the belief in question, they must "believe a certain proposition containing it."[35] In the case of the conditional, for example, this would mean that for one to have the logical concept of 'if, then,' then they must also have, or assent to, further beliefs, like logical implication or the validity of modus ponens, that 'contain' the conditional. Or, in Boghossian's words, this would amount to the claim that "anyone possessing the concept of conditional would have to have the belief that MPP is a valid rule of inference."[36] There are, at least, two important things to note about this.

First, this is a very similar sort of condition to the principle of acceptance as understanding. Hale's idea was that if you did not accept the consequences of the conditional then you could be said to have misunderstood the conditional to begin with. Here the idea is that if one does not take on board the consequences of some belief, or necessary associated properties, then one never really had the same belief in mind to begin with. However, this leads us to the second important point: this condition was extremely effective at warding away type-2 skepticism, and largely ineffective at warding away type-1 skepticism. Indeed, Boghossian echoes this concern when he says:

"Surely, one can have and reason with conditional without so much as having the concept of validity or of logical implication. At most what the theory of

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[34]For the inclined reader, Boghossian provides a discussion of this sort of defeasibility in the context of the Quinean account of logic (See: Boghossian (2000), pg. 232-234); Hartry Field provides an extensive defense for logic as the sort of thing which could not ever be empirically defeasible in Field (1996) and we will discuss his view further in chapter 3; and finally, Nenad Miščević defends a view of an a priori logic with a posteriori defeasible justification in Miščević (2012)

[35]Boghossian (2000), pg. 240

[36](Boghossian, 2000), pg. 240

concept possession would license is that inferring according to MPP is part of the possession condition for conditional, not the belief that MPP is valid. But what we are after now is the justification for the belief."[37]

In this way, default reasonable beliefs with possession conditions might be an apt way to describe the function of the principle of acceptance as understanding in Hale's view, but it would fail to add anything more to the picture—the type-1 skeptic is looking for the justification of the belief, some positive ground for the belief.

It would seem then that 'default reasonable beliefs' does not aid Hale's view in addressing the type-1 skeptic (and so, alone, does not address the type-1 skeptic either). Furthermore, we can see how the epistemic picture provided by Hale is similar to that of default reasonable beliefs generally. In the following section we will take stock of the criticisms of Boghossian and Hale, and where we have done better or worse at addressing this thesis' guiding issues; and then in chapter 3 we will discuss Hartry Field's non-factualism which will bring about, among other ideas, default reasonable beliefs and empirical defeasiblity once more.

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[37]Boghossian (2000), pg. 240

2.4   The Morals So Far

At this point much ground has been covered, so I would like to briefly restate some of the positive conclusions and then make some remarks about how we are faring with respect to our guiding issues.

Lesson 1a: Rule-circularity fills an important niche by conferring warrant to some conclusion through its explanation of the involved inferential rule. Recall (RC): "S's rule-circular argument for a rule of inference M will confer warrant on S's belief that M is truth-preserving, provided that M is a genuinely meaning-constituting rule for S."

As we saw earlier, rule-circular argumentation dealt well with the type-2 skeptic: one could appropriately 'discharge' the infinite regress of hypotheses once one application of the rule was accepted. And furthermore, the issues that came with rule-circularity were rather to do with the attempt to spell out "genuinely meaning-constituting" in terms of conceptual roles.

Lesson 1b: The positions discussed were not fundamentally opposed to this narrow use of rule-circular argumentation—explaining the justification of our rules rather than persuading another to use them or explaining their origin. In other words, they do not contain, implicitly or explicitly, principles like (NoRC).

Hale certainly hoped to avoid rule-circular argumentation and posed three concerns for it; however, it was not clear that these criticisms were effectively posed with respect to the use of rule-circular argumentation given by the principle (RC). Nor was there any indication that the various default reasonable beliefs approaches would bar one from later justifying their logical conclusions via rule-circular arguments. Now there is one further 'lesson' to note, but it will require some further explication.

Lesson 2: It is not clear that there is any problem with taking the meaning of a connective to be given by its introduction and elimination rules.

Of course, this is a bold claim and marks a significant departure from the literature discussed so far, but it is, I will presently attempt to show, correct. The immediate response

would be to claim that Tonk has introduction and elimination rules, but is clearly a 'bad connective'—certainly this is the attitude we have taken throughout the thesis and a point to be upheld—and so a rule's being "analytically valid" does not give it a genuine meaning; however, it is this latter point that is not so obvious. A rule may have a genuine meaning and yet still be a 'bad rule' to employ. To better spell out the option under consideration, Boghossian's and Hale's arguments against Tonk should be briefly reconsidered.

On Boghossian's account, Tonk was a problem to be dealt with because rule-circular argument seemed unconstrained—there was no other method to justifying logic and it appeared that we could provide a rule-circular argument for Tonk—and this was circumvented by the condition of "genuine meaning" in (L) and (RC).[38] One was entitled to infer by a rule so long as it had a genuine meaning, and one could then justify their inferred conclusions in accordance with that rule by supplying a rule-circular argument. One may note, however, that this is only one way of restricting rule-circular arguments and was strategically chosen for Boghossian's 'point-to-come' about conceptual roles. If conceptual roles determine the meaning of a rule, then we have a 'clear path' from epistemology of conceptual roles, to entitlement, to warrant. But (L) and (RC) *need not* share the same restriction (and as we saw, 'conceptual roles' were not without their issues). It may be that, for example, (L) requires a meaning restriction and (RC) requires a soundness restriction.[39] If we take this point in conjunction with the idea that introduction and elimination rules function fine for determining meaning, then one would be entitled to infer according to Tonk but not be justified in the conclusion of *any* Tonk argument.

In Hale's position we saw a concern for the meaning of connectives to come out in terms of the necessary but not sufficient condition of one's acceptance of the logical concept. Tonk was ruled out because assent to Tonk alone is not enough to give it a genuine meaning ('what would it be like for someone to accept Tonk?') and the 'minimum bar' for a

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[38]For the readers reference:

> (L) : If M is a genuinely meaning-constituting rule for S, then S is entitled to infer according to M, independently of having supplied an explicit justification for M.

[39]Here then, (L) would stay the same and we might amend (RC) like so:

> (RCS) : S's rule-circular argument for a rule of inference M will confer warrant on S's belief that M is truth-preserving, provided that M is a sound rule.

connective would be, instead, its being sound.[40] But here one may then note that Hale was perfectly capable of making sense of Tonk-statements, even proving things about Tonk (specifically, its unsoundness). What qualities Tonk lacked, and so why it was ruled out *as a bad connective*, was 'conceptual necessity' and soundness. The question then is, to co-opt Russell's distinction: is it possible to differentiate between assent to one's *reference* of a rule,[41] and assent to one's *assertion* of a rule? Is it possible to differentiate between genuinely meaningful but not justified uses of a logical concept, and genuinely meaningful and justified uses of a logical concept?

There is a way in which the questions just posed are useless: 'of course there are things justified and things not justified;' but the arguments posed by Hale and Boghossian seem to imply that once one 'has' a logical rule, license to a particular inference, then they are justified. And this will be just because one could not ever be licensed to a Tonk-like inferential pattern. Maybe, once harassed by a pesky Tortoise, one will have to produce a proof or argument which shows their so being justified, but this a mere inconvenience. Consequently, the challenge here is to say that one might be properly entitled to all sorts of logical connectives on the basis of there being appropriate introduction and elimination rules, but that they would not be justified for any particular actual inference without meeting some further criteria.

The next chapter will focus on Hartry Field's non-factualism in an attempt to make further headway on our guiding problems. Particularly, I will show how some form of rule-circularity is invoked in Field's framework for justification and also how a different view of meaning, and so Tonk, is presented; particularly, one more amenable to the discussion just above.

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[40]There is a sense here in which Boghossian and Hale are actually striking upon the same idea. In Boghossian's case we had to be careful to note that not all logical ideas we reference, like Tonk, might have conceptual roles (though he does no provide any criteria for when they may); and in Hale's case, we are urged to recognize that though we can assent to all sorts of ideas, only some of them will be of "conceptual necessity."

[41]Russell uses the language of "asserted" and "unasserted," or "considered," and compares this to the grammatical notion of a verb and a verbal noun. I use "reference" here to capture these ideas succinctly and hopefully not to implicate the psychological aspects, which Russell also hopes to avoid, that 'consideration' may bring to mind.

Chapter 3

Logical Methodology and Non-Factualism

This chapter will follow quite the same structure as those previous: I will introduce Field's non-factualism, then I will attempt to show how the view does or does not address our guiding issues, and then bring to the fore any particular residual problems. Since Field's non-factualism is an encompassing epistemological view which tackles many issues, the discussion will be broken up into three sections. The first will explain to what extent Field takes logic to be an a priori matter and will discuss his distinction between those beliefs which are weakly a priori compared to properly a priori. The second will explain the role of an 'evidential system,' and how Field takes such systems to be related to our epistemic 'goals.' And finally, the third section will explain how deductive logic is justified given the other commitments. Particularly, I will attempt to show that Field makes a case for deductive logic being indispensable to our otherwise inductive reasoning, which is itself indispensable, and that subsequently there is the form of a rule-circular argument.

3.1 A Priori Logic, Weak and Strong

It was noted briefly in the discussion of Default Reasonable Beliefs that Boghossian was not their only commentator, and indeed Field has addressed default reasonable beliefs quite directly. Particularly, in "Apriority as an Evaluative Notion," he characterizes such beliefs as those which are weakly a priori: that is, those "that can be reasonably believed without empirical evidence."[1] So, for example, it might be default reasonable to believe that the conditional operator is valid; but, so too might be the proposition: 'people usually tell the truth.'[2] Of course, these two beliefs are worlds apart, but one can see how each might be plausible without some prior empirical inquiry.

On the other hand, there are those beliefs which are, so to speak, a priori without qualification (and which I will call 'properly a priori'),[3] and this is a matter of their satisfying a further condition; namely, their being empirically indefeasible. So, for Field, properly a priori beliefs are those for which no empirical evidence may overturn their truth. Consequently, all properly a priori beliefs are weakly a priori, but only some weakly a priori beliefs will be properly a priori—just those that are empirically indefeasible and plausible without empirical evidence to begin with.

In the case of "people usually tell the truth," we have a belief which is a priori in the weak sense: it is plausible to believe without some empirical study or experience first, and if some empirical study were done, it may very well be the case that the belief was overturned, that one found that people do not usually tell the truth. Now, the principles of deductive logic are certainly weakly a priori in that they are plausible to believe without a posteriori inquiry, but it is less clear whether or not beliefs in logic principles could ever be overturned. What way would the world need to be to make a belief in, say, universal instantiation, wrong?

To spell out Field's view on this matter will require explaining two points: (1) that there is some sense in which empirical matters affect logic, but that this does not make

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[1]Field (2000), pg. 117

[2]Field (2000), pg. 120

[3]Field wavers on calling these concepts 'strongly a priori' and opts instead for simply, 'a priori.' The reader may ignore the addition of 'properly' if they so choose, as it is only used for clarity, to denote those beliefs which are both weakly a priori and empiricially indefeasible.

them empirically indefeasible; and (2), that there is some sense in which logic *is* defeasible, but not empirically so. Regarding the first, Field is particularly interested in the debate surrounding quantum logic:[4] might there ever be a reason for us to abandon classical logic in favour of quantum logic? There is the immediate case of quantum phenomena which appear to be measurable and real instances of physical situations which, when translated into logical propositions, fail to cohere with distributivity laws. However, it is not clear that such phenomena disprove classical logic, or logics which assume distributivity, or even the notion of distributivity itself, for such claims do not depend on physical phenomena in the first place.

Regarding the second point, there is a sense in which logic is defeasible; particularly, it is *conceptually* defeasible. On this matter, Field says...

> "I am not saying that we can completely dismiss the possibility of replacing standard logic with a 'quantum logic' in which the distributive law is abandoned, and of arguing that one of the attractions of this logic over classical logic is that it would make quantum phenomena less mysterious: that would be dogmatism. But there are considerable conceptual obstacles to working out of what it would be like to employ such a logic. For instance, there are obstacles to explaining the circumstances under which special distributivity assumptions can be invoked...; and there are obstacles to explaining what the inductive methods that would go with such a logic would be like... We can't completely dismiss the possibility of replacing standard logic with nondistributive logic, because we can't completely dismiss the possibility that these conceptual obstacles can be overcome. But overcoming them would be largely a conceptual matter, not an empirical matter."[5]

There are a number of things to take note of in this passage—particularly, the meaning of those two options which are considered as conceptual obstacles, points we will see in the coming sections—but I will focus just on the broad idea here; namely, that there are conceptual obstacles to our use of a priori concepts, and in this case logic.

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[4]See, at least: Field (1996), Field (1998), or Field (2000)
[5]Field (1998), pg. 15

The view under consideration here would have it that properly a priori concepts could not ever be wrong a priori, but that there may be issues with the way that we use them; and this will be the product of our own conceptual mistakes. This amounts to, in effect, Field's idea that "the so-called logical truths are indeed true in the most straightforward sense; the claim that belief in them is strongly a priori justified, on the other hand, is an evaluative claim."[6] This is not to say that those beliefs, in say, logic, are not properly a priori, or strongly a priori, only that having them does not provide any such justification. If they were so justified, then it would be difficult to see how they may be defeasible, conceptually or empirically.

In sum, Field would have it that logical concepts are properly a priori, they are plausible without empirical grounds and empirically indefeasible; but, they are not undoubtable. Consequently, they may be 'revised' in response to conceptual issues, and this will amount to a change in our epistemic practice with those concepts—and, perhaps, our being justified or not in using them—rather than an apt response to a recognition that they are not true.

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[6]Field (1996), pg. 370

3.2 Evidence and Contingent Reasoning

One issue with the first 'conceptual obstacle' raised above is the vagueness about what is meant by "circumstances," and then how these circumstances affect the applicability of concepts (especially those we take to be properly a priori, and so true *always*). However, Field presents the notion of an evidential system: "a bunch of rules governing what to believe in what circumstances."[7] Consequently, we can see that the question of 'under what circumstances can certain assumptions be invoked' will depend on one's evidential system, the norms or rules they assent to which determine which concepts they believe in which circumstances.

Of course, this does not completely clear up the matter as one may then pose the question, among others, 'how do we get our evidential systems?'[8] There appears to be a circular issue if evidential systems determine what to believe in certain 'circumstances,' but those 'circumstances' determine the evidential system. For example: if one is dealing with quantum phenomena, quantum circumstances, *and* this determines their use of a non-distributive logic, but that use of the non-distributive logic then determines what to believe about the quantum phenomena, then it would seem that there is only one possible thing to believe. Or, it could be that there is but one evidential system always employed by all people at all times, but this is not the picture that Field has in mind.[9] Evidential systems are themselves contingent, but not upon the circumstances for which they tell us what to believe; instead, they are relative to our epistemic goals.

Field buries this notion amongst further discussions of externalism, reliablism, naturalism, and so forth, and never quite explicitly states it as such; but a number of passages support this idea, and particularly, the following:

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[7]Field (1996), pg. 362

[8]I take it that another important and immediate question is, 'how do I know what someone else's (or for that matter, my own) evidential system is?' Field proposes that this is an idealization, an evaluation, and not a properly factive question: "To ascribe to a person an evidential system is to give an idealized description of his or her belief-forming and belief-retaining behaviour." (Field (1996), pg. 362) If justification in Field's non-factualism were to depends upon our explicit knowledge of evidential systems, this would present a problem; however, we will see later how his approach to justification allows us to avoid this issue.

[9]Nor, the reader may note, does it appear to present a compelling epistemic story. How do we recognize this system? How do we come to know we have the system? Perhaps, through intellectual recognition...

"A first advantage of this non-factualist approach is simply that we have some idea how to go about deciding whether to employ an evidential system with certain features...: what is involved in deciding to employ a certain sort of evidential system is seeing how well such a policy would accord with one's epistemic goals."[10]

And so, the circularity noted is avoided. Evidential systems are relative to the epistemic goals we have in mind—what we want to know about, and what epistemic values we may have regarding our results (for example, expressive power or reliability)—and when applied to the world, to certain circumstances, determine what we believe. For clarity's sake (particularly, when there are many goals in discussion) I will use the word 'domain' to indicate those goals which specify what we want to know, and 'goal' or 'value' to indicate those goals which specify certain qualities of our conclusions (i.e. that they are reliable or powerful).[11] One is not forced to use a certain evidential system, instead evidential systems are relative to the epistemic goals one has, in the sense that which evidential system is the appropriate one for us to use depends on which one best enables us to meet our goals.

One might be tempted at this point to claim non-factualism to be relativism on two accounts: first, if our evidential systems are goal dependent *and* we do not restrict what goals are permissible, then any evidential system would be allowed; and second, if logical concepts are subject to change according to one's evidential system, then we may be inadvertently licensing one to infer by Tonk rules. The latter of these two points will be discussed partially in the following section, and then again in different terms in section 3.4; but the first may be addressed now.

Given the assumption that people select the best (or at least, plausibly good) evidential systems for their epistemic goals, then it would seem that, *without restricting one's goals*, there could be, in principle, goals that would call for evidential systems otherwise considered questionable.[12] For example, if we consider a potential epistemic goal to be predicting the future of one's romantic relationships—to come to know, and assent to, those

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[10]Field (1996), pg. 377

[11]Field, unfortunately, provides no clear distinction of his own and uses goal to describe everything. This is a feature of his theory, as it should help one to see the ever-dependent nature of methodology to prior epistemic dispositions, i.e. goals; however, discussion can become quickly confused without some linguistic separation.

[12]One might be tempted at this point to say that people 'ought' to select the evidential system which is

relevant propositions—then we may license, as a plausible evidential system, the practice of tea leaf reading. Tasseography, at least, has a history of such predictions.

That said, it is not clear that we are allowing one to infer by tasseography *always*; but rather, there is a set of goals, pertaining to what we may know or what qualities of that knowledge we may value, which tasseography will sometimes be better suited for and sometimes not suited for at all. If a cosmologist were to attempt to predict one's romantic relationships, for example, then one might be far more skeptical of their conclusion than they might be of, say, their fortune-teller's conclusions. In other words, there may be epistemic goals we have for which there are no apt methodologies—practices which do significantly better than chance—and so, relative to those goals, otherwise reliable methodologies (cosmology) do no better than otherwise poor methodologies (tea leaf reading). So, this does not generally undermine the cosmologists inferences or reliability *in other domains*, it shows that evidential systems, and broadly, theoretical apparatuses, are evaluated relative to, at least, their domains.

One might note that there also appears to be a difference between so-called 'radical relativism' and the sort of relativism which is a consequence of non-factualism, a kind of moderate relativism. Field rhetorically asks when discussing default reasonable beliefs: "In virtue of what is it reasonable to use modus ponens on no evidence?" and then concludes that due to evidential systems being so relative,[13] the proper question should be "why value a methodology that allows the use of modus ponens on no evidence?"[14] We may drop the point about evidence here, for what is relevant to the discussion of relativism is that whatever beliefs, principles, or evidential system, one wants to argue for, that argument will be reduced to an argument about epistemic goals and how well that 'methodology' does with respect to those goals (here we might think of goals as domains), which may itself implicate further debates about other meta-goals or tangential goals (and here we might think of goals as values).

There are two supporting points to make about this—particularly, points which un-

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best for their goals, regardless of whether or not they do (and so to avoid assuming anything about their selection behaviour); but we will see that Field does not take there to be any such oughts.

[13]There is the additional point that Field takes there to be no straightforward matter of fact regarding "reasonableness." There is only reasonable relative to an evidential system, to dispositions, to goals, or to the evaluated ideal we construct for one another. See: Field (2000), pg. 127-128

[14]Field (2000), pg. 128

dermine the 'scare' of relativism: first, that there is actually a general reasonableness and common ground to goals; and second, that the lack of a principled prohibition on certain goals does not undermine the actual historical results that evidential systems produce. Regarding the first, Field argues that one should recognize...

> "That certain small modifications would produce results which have certain advantages (as well as certain disadvantages) over the results [our evaluating systems] produce. For instance, we recognize that a system slightly more stringent in its requirements for belief is more reliable but less powerful. So we recognize that a slight modification of our goals... would lead to a preference for the other system, and we regard the alternative goals as well within the bounds of acceptability. Consequently we make no very strong claims for the preferability of our system over the alternative: the alternative is slightly less good than ours given our precise goals, but slightly better on alternative goals that are by no means beyond the pale."[15]

The idea being that most goals can be seen as decently acceptable—with moderate advantages and disadvantages—and that completely outrageous goals is largely a 'boogeyman' problem. However, Field does contest the extreme relativism (still in principle possible) that might come with one who endorses some very questionable goals but concludes: "so, what?"[16] Indeed, the point of non-factualism is to call for a "goal-relative notion of better" which would avoid the pitfalls of assuming that there are matters of fact about 'standards of correctness,' and that if there are outliers (like the 'Moonies,' those who follow the word of the Reverend Moon) they aren't to be dismissed *outright*; rather, those outliers who subscribe either to vastly different epistemic goals or methodologies are to be argued against with moral oughts, instead of epistemic oughts. And all this culminates in the point that: "We don't need to believe in metaphysical constraints to believe that [one has] got lousy goals. (And if calling the goals lousy is evaluative rather than factual, so what?)"[17]

So, regarding Field's second supporting claim, if all practices really were equal without metaphysical constraint, then there would be no problem in so choosing to follow some

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[15]Field (2000), pg. 141

[16]See, Field (2000), pg. 140-143

[17]Field (2000), pg. 140-143

methodology or set of goals;[18] but, clearly, this is not the case. Some practices will 'win out' over time and "what makes scientific methods better isnt that *they say that* they will lead to more truth and less falsehood than these other methods, it is that *they do*."[19] Maybe *prima facie* all evidential systems and goals are permissible, but it would be a mistake to think that, at least, some of these debates have not made progress over the course of history, to think that tea leaf reading and science are still equally successful.

In a way, Field is conceding the point: non-factualism is a relativism; but to consider this a fatal problem would be to forego the 'point' of non-factualism's stress on evidential systems, on engaging in a methodology—taking up some evidential system and using it in the world—which will itself reveal its usefulness, or uselessness, over time. Then, Field's hope is to say that just because evidential systems are relative to goals doesn't mean that the question of, when comparing two evidential systems, 'which system is better for a particular set of goals,' is without an answer. However, if logic is a properly a priori matter, and so empirically *indefeasible*, then one may want to question how an otherwise a posteriori view of the success of evidential systems relates at all to our major concerns—how do properly a priori concepts get 'picked' as a methodology, and how do they 'succeed,' i.e. lead to truths a posteriori? This brings us to the final section where I will discuss Field's view on the indispensability of logic to epistemology.

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[18]At least, it is difficult to see how, or why, we might want to privelege one methodology over another if there is no relevant metaphysical claim or principle to compare them by.

[19]Field (2000), pg. 139-140

3.3 Universal Reasoning and Circular Justification

In the first section there were two conceptual obstacles introduced, the first being about the circumstancial application of some concepts, and the latter being the explanation of 'what the inductive methods that would go with [non-classical] logic would be like.' It is in asking how, generally, properly a priori concepts might 'win out' in their application, as evidential systems, that these two obstacles meet. If logical principles are an empirically indefeasible matter, then how is it that we might use them in an evidential system and so empirically corroborate them? This will introduce three further aspects of Field's epistemology: (1) the global use of inductive reasoning across evidential systems; (2) the circular justification of those concepts used in evidential systems; and (3) the indispensability of deductive logic. Subsequently, I will attempt to show that non-factualism provides a rule-circular justification for a priori logical principles insofar as they are invoked in our evidential systems.

The last section ended with the question: 'in what sense do we inductively use properly a priori concepts, concepts we take to be empirically indefeasible?' Considering the history of empiricism and debates about the a priori, at least, this would be a reasonable question to ask; however, Field dumps *this* divide between a priori and a posteriori concepts when supposing that we are fundamentally 'probabilistic believers.' Over time our confidence in all of our beliefs is subject to change based on the application of our evidential system at a particular time and the evidence with which we are confronted. This is not to say that we are ideal reasoners, or fundamentally 'Bayesian' (as so many authors are wont to do), but rather that all of our epistemic claims can be understood as probabilistic claims, even those claims that we would otherwise effectively take to be non-probabilistic—i.e. those claims which Hale might call undoubtable.[20] In this way, there is no application of an evidential system which will not involve inductive 'updating.'

Before we turn to the question of how deductive logic can neverthless count as indis-

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[20]More particularly, Field has in mind a fundamental conceptual scheme, given by a set of rules according to probabilistic axioms, which all further epistemic claims are couched in. For further detail, see: Field (1977). Unfortunately, to cover Field's "probabilistic semantics" in depth is beyond the scope of the thesis, but the crucial point, that our semantics for all epistemic claims is probabilistic, is all that is needed to progress.

pensible if we are fundamentally probabilistic reasoners, it can now be shown how Field's account justifies the conclusions of our evidential systems. This depends upon two ideas: that evidential systems entitle one to those conclusions which are the consequences of the system assented to, and that the reasoning behind our choice of evidential systems is rule-circular. On this first point, Field suggests that "if a person's evidential system licenses the person to believe that p under certain conditions, and the person does believe that p under those conditions, then the person's belief is *quasi-descriptively justified*: justified relative to the person's own evidential system."[21] The choice of the evidential system, that 'methodology' which will determine what someone ought to believe in certain circumstances, entitles one to those particular conclusions about certain circumstances which follow from the reasoning implicated by the deductive principles assumed in the system.

Regarding the second point, however, it is more difficult to see how we might move from a quasi-descriptive justification to an actual justification. Continuing the above discussion about science and tasseography, Field says:

> "What makes scientific methods better isn't that *they say that* they will lead to more truth and less falsehood than these other methods, it is that *they do* lead to more truth and less falsehood than these other methods. In saying that they do this I am presupposing the methods I accept, but that should go without saying: that's what accepting a method involves. Of course, this is circular. ('Rule-circular', anyway)."[22]

To apply an evidential system is to suppose a set of principles and concepts, logical or otherwise, which one *then* reasons according to. This is the "one step" that Boghossian asks for—to even begin inquiry with an evidential system is to assent to the principles in question. That said, Field is not entirely convinced by this partial picture he presents, noting that rule-circular justifications do not seem to be worth much of anything if they can never turn out false; and this would then seem to be a problem for our logical concepts if they are the sorts of properly a priori things which could never be false. So, Field concludes, "rule-circular 'justifications' of our methods have another role: they serve to explain why

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[21]Field (1996), pg. 362-363
[22]Field (2000), pg. 139-140

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we value our methods over competing ones."[23] This, however, does not take away from the justification of any inferential rule for two reasons: one, we have actually provided a stronger justification, a justification for the whole evidential system which includes that inferential rule; and two, because one must still assent to the evidential system in question before being able to be entitled in the first place (there is, in effect, a constitutive part of one's 'accepting').

So then we might bring all this discussion together to conclude that inductive reasoning is always justified as it will be employed across all evidential systems. Moreover, it will always prove to be better than its rivals, from an inductive point of view, and so will have rule-circular justifications available for its basic principles. At least, Field makes this point when he says that "our basic system of inductive rules is... 'immodest:' it positively evaluates itself over it's competitors."[24] What is now needed is a story which explains, in whatever relation to inductive reasoning, why deductive logic will also be justified.

If deductive logic was necessary to employ our inductive reasoning then the picture would be quite clear; however, it is not evident that Field takes deduction to be indispensable in this manner. In, at least, "Logic, meaning, and conceptual role," Field seems to imply that inductive reasoning is actually prior to deductive reasoning; and that the semantics for our logical connectives is understood with respect to probabilistic rules and axioms.[25] And so, if it were the case that deductive reasoning is second fiddle to inductive reasoning, we might have no reason to suppose that deductive logic is indispensable or ever justified in this rule-circular manner—every evidential system might employ inductive reasoning (since all of our reasoning is in those probabilistic terms), but we need not suppose that all evidential systems employ deductive logic. However, Field concludes that it is not the case that "logic is 'necessary'..., but rather that the epistemological principles that would do the licensing must themselves employ the logic in question. If logic is regarded as up for grabs, there is no clear way to apply epistemological principles; there is no clear fact of the matter as to what they license."[26] Given some set of principles, we

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[23]Field (2000), pg. 140

[24]Field (2000), pg. 143. Here, Field is also borrowing his terminology from David Lewis; particularly, Lewis (1971) and Lewis (1974)

[25]See: Field (1977), particulary pg. 381-383 and pg. 401-402

[26]Field (1998), pg. 19

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can only answer the question 'what does this evidential system entitle one to infer,' if one can employ deductive logic; and really, one can only assent to some evidential system and infer certain beliefs or conclusions *if* they can employ deductive logic.

Exactly what standing this gives deductive logic, however, is still unclear. Earlier it was mentioned that if one were to ask 'why is it reasonable to use modus ponens?,' the non-factualist would re-frame the question: "why value a methodology that allows the use of modus ponens?" This suggests that some deductive inferential rule is itself a part of the evidential system. So, the idea would be that deductive logic is 'indispensable' to the extent that some certain principles, some notion of entailment,[27] must be explicitly invoked in any evidential system one assents to.

For example, there may be some evidential system, $\boldsymbol{I}$, which entitles one to a set of particular conclusions, $\boldsymbol{C}$. But, $\boldsymbol{C}$ would not be *determined* by those principles in $\boldsymbol{I}$, unless, at least, among those principles assumed is a deductive system, $\boldsymbol{D}$, which will contain a notion of entailment and a set of logical connectives.

Then, there appears to be two rule-circular justifications. The first is within evidential systems. Since those evidential systems assume some deductive principles, any conclusions we draw from those systems we assent to are to be *explained* in terms of the rules assumed. The second rule-circular justification happens at the more general level of goals and inductive confidence levels about evidential systems. Here, because our inductions are immodest, they too rule-circularly *explain* how we come to have the confidence level *and* confidence threshold which determines which evidential system we will prefer.[28] There is

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[27]Here I use the language of David Ripley (See, Ripley (2015)) who suggests that we may give different semantic readings of the turnstile, which subsequently include meta-logical properties (for example, transitivity, or distributivity).

[28]One might wonder how one is supposed to reason inductively given a set of rules *derived* from probabilistic axioms—especially if we are capable of changing our inductive methods, or in the case that these methods are not biologically innate (both discussions Field takes up and seems to imply are the case). Would this not implicate a background and necessary use of deductive reasoning? The application of whatever axioms of probability is, essentially, application of axioms; and any application of axioms is fundamentally a deductive logical practice.

So while, the inductive rules are "immodest" and their ever increasing probabiities are rule-circular justifications, they are derivative of axioms, and to get to that step we will have to apply some deductive system. This has two potential implications. First, it may be the case that there is actually three rule-circular justifications: (A) of conclusions from evidential systems; (B) of our selection of evidential systems by inductive rules; and (C) of those inductive rules derived from our implicit and truly indispensable

a great deal more discussion that could be had about this, but I will focus on just one aspect here; namely, that it gives us some way of understanding what the other conceptual obstacle we began with really was.

The problem with saying we might overturn classical logic for the use of some non-classical logic, is that it is quite difficult to see what impact these other logics would have on our inductive methods. If we only accept quantum logic when dealing with quantum phenomena, but our inductive methods stay the same because our implicit deductive system, which gives us those inductive rules, is unchanged; then, we might find very high success *with the evidential system that assumes quantum logic*, but this system will not transfer to other domains. But then, it would seem, that we have not overturned anything about classical logic, since we are still using it to make our judgments about the evidential systems. If instead our implicit deductive system were to change to quantum logic however, then it is difficult to see how we might derive our inductive rules, and so how we might select evidential systems at all. In effect, the worry then is that distributivity may be necessary to pick evidential systems (or, at least, measure and compare them inductively), but note that this will not ever be empirically overturned—the restriction is our conceptual inability to find good inductive rules from non-distributive deductions.

Then, to summarize Field's non-factualism...

> Logical concepts are properly a priori concepts—they are plausible without empirical evidence and empirically indefeasible. Our evidential systems license us to infer according to those logical concepts when they are assumed in the system so used; however, there does not appear to be any set of evidential systems which would not employ logical concepts (though, exactly which concepts may be up for debate and revision according to our epistemic goals). So, logic is 'indispensable' (or, 'necessary') to our epistemic practices. However, to further move from simply our entitlement under an evidential system to the justifica-

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deductive system. This, however, would return one to a view which, along the lines of Hale, would indicate a minimal inference kit necessary to doing some derivations of a kind. And, as noted previously, this is explicitly *not* the view Field wants to argue for, even though it may be the argument he must make. However, whether or not the 'induction only' approach forwarded in Field's probabilistic semantics is right or not, it does not disturb the minimal point made here—that there is a deductive rule-circular argument for the consequences of our evidential systems.

tion of our logical conclusions, we must appeal to the rule-circular argument of those principles. There is no constraint, metaphysically or otherwise, on which goals we may have (and so which evidential systems we assent to), but our being inductive reasoners to begin with gives some basis for which we may see some systems as better or worse.

The next section will return to our three guiding issues: how might non-factualism help us with Tonk, the type-2 skeptic, or the type-1 skeptic? And, with respect to the lessons of section 2.4, are we making progress by moving to non-factualism?

3.4 The Ups and Downs of Non-Factualism

As is now tradition: let's begin with Tonk. It might immediately seem that non-factualism raises more concerns about 'bad connectives' than it quells. Evidential systems entitle our logical conclusions according to those logical concepts and principles assumed in the evidential system; and so, if one assents to an evidential system which involves Tonk, then they are entitled to their Tonk inferences. Without some further consideration, like soundness or 'meaning constitution,' then any principle can be assumed in the evidential system, and this is precisely the 'moderate relativism' non-factualism results in.

Yet, this line of reasoning is not quite right. One must keep in mind that Field's epistemology describes us as fundamentally probabilistic reasoners. Science was explained as being better than tasseography not because it says it does better (since all evidential systems do this), but because it does do better; and so, the further implicit point is, one will recognize that it does better and likely choose to employ 'science' (assent to the relevant 'science-evidential systems') over tea leaf reading. This might eventually help us ward away connectives like Tonk, for they certainly would 'lose out' to connectives like the conditional over time, but note that this does not actually *stop* one from using Tonk. Argumentatively, the premise that we are fundamentally inductive reasoners does a fair bit of 'heavy lifting' for Field, but without rules regarding 'confidence thresholds' and at what point one may no longer reasonably assume some principle then Tonk is still on the table, *no matter how badly it performs.*

The non-factualist, however, would not mind this conclusion. As we saw earlier, Field would be happy to call such systems "lousy" and to try and dissuade someone from employing those logical connectives—certainly this is the thrust behind taking there to be no fact of the matter about what is reasonable[29]—but this raises some concerns which I contest the non-factualist cannot adequately address: particularly, there appears to be a lack of common ground for which one might try to dissuade someone else, and this answer

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[29]Though expressed implicitly throughout, Field does explicitly say: "Indeed, a main virtue of evaluativism is that it removes the force of most sceptical arguments. Most sceptical arguments depend on assuming that reasonableness is a factual property of beliefs or of rules, and on the understandable resistance to stripping away the normative nature of reasonableness by identifying it with a natural property like reliability." (Field (2000), pg. 143

appears to undermine the indispensability of deductive logic.

In appealing to our being inductive reasoners, Field does not establish some set of principled criteria according to which we may rightfully evaluate someone's evidential system as permissible or not; but the hope of the claim is that we can establish common ground on which we can compare our dispositions about evidential systems: 'look, this system is not doing so well empirically, but this other system is. Here is my confidence level about these assumptions. Is yours the same? What epistemic value do you have that would allow a lower confidence level?' Of course, this understanding of common ground raises many more questions and concerns. I will not attempt to discuss this thoroughly, but instead raise one particularly troubling response.

While Field's earlier work attempted to supply an explicit set of probabilistic axioms that we use, his later essays admit that there can be variety not only with respect to deductive practices and evidential systems, but also inductive practices.[30] Furthermore, to reiterate a point from earlier, it is not clear what inductive reasoning people actually employ. The non-factualist creates an idealization of someone when they evaluate their inferences; and so, it would seem, there is very little common ground at all—one does not know what actual inductive reasoning someone else is using, and those methods need not be relevantly similar (besides that they are statistical or probabilistic in some manner) to anyone else's.[31] The idea that we might compare confidence values, for example, to

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[30]Some form of inductive reasoning is indispensable, this Field consistently holds throughout, but there is admittance of different inductive 'rules.' When discussing the circularity of evidential systems and the "immodest" nature of inductive rules generally, Field notes: "For instance, the respective users of two inductive rules A and B that differ only in the value of a 'caution parameter' can agree that Rule A is more reliable but less powerful than Rule B." (Field (2000), pg. 143) However, the choice here to differ only by their 'caution parameter' is not principled but to continue to make a point about the sorts of differences Field finds reasonable, i.e. inductive rules A and B *can* differ drastically.

[31]For those readers who might doubt the immediate possibility that people fail to reason ideally about statistics, see: Tversky and Kahneman (1981). In these well-regarded studies, participants consistently fail to reason appropriately according to basic probabilities (and logical conjunction). I would also forward, amusingly, this description from Carroll's *Alice in Wonderland*:

> As she said these words her foot slipped, and in another moment, splash! she was up to her chin in salt-water. Her first idea was that she had somehow fallen into the sea, 'and in that case I can go back by railway,' she said to herself. (Alice had been to the seaside once in her life, and had come to the general conclusion that, wherever you go to on the English coast, you find a number of bathing-machines in the sea, some children digging in the sand with wooden spades, then a row of lodging-houses, and behind them a railway-station.)Carroll

show that someone values power and another values reliability depends on the underlying statistical methods being similar enough in the first place.

Regarding the 'moderate relativism' of Tonk, the second issue pointed to was the effect that this may have on understanding deductive reasoning to be indispensable. Field is very loose in his characterization of the necessity of deductive inference—recall, we cannot tell what conclusions one is entitled to given an evidential system without some deductive reasoning—and minimally all this might call for is some way of 'reading' the turnstile plus a logical connective; but this would have the discomforting consequence that if logic is indispensable at all, then Tonk is an equal contender to the conditional *in principle*. Perhaps the non-factualist would accept this conclusion with open arms—it is, of course, just a part of moderate relativism and the evaluation of systems—but, with a connective as dysfunctional as Tonk, it is unclear how one can tell what conclusions are licensed by an evidential system in the first place. If we use a deductive system that includes Tonk to make inferences about certain circumstances, our conclusions might be anything at all. And we have strong reason for believing that such a system will be unlikely to satisfy any reasonable goals, because it will lead us, whenever we actually infer using the tonk rules, to believing in entirely unprincipled ways. So, we have a strong case for supposing that Tonk is going to be part of *worse* evidential systems, barring really bizarre goals. What is evident, however, is that the non-factualist lacks the argumentative tools needed to 'totally' stop one from using Tonk.[32] What about the type-2 skeptic?

In discussion with the skeptic of logical force, the non-factualist performs excellently: evidential systems share aspects with both the sort of extreme rule-circular arguments we saw with Boghossian initially (because they lack a constraint like the rule in question in being first 'meaning-constituting') and the principle of acceptance as understanding from Hale. One must first assent to the evidential system in question, which then determines what inferences are possible and by what principles; and so to question some logical conclusion from within an evidential system is to effectively 'misunderstand' what one accepted in the first place. Every evidential system has those rule-circular arguments

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(2011), pg. 18

Of course, Alice's poor inferential behaviour is not itself evidence against the logical structure of thought, but it does familiarly expose the ease of inductive error.

[32]I leave it up to the reader to decide if this is a better or worse conclusion than the other views discussed.

composed of its principles available to it. Before moving on, however, one might recognize that this is a very different sort of rule-circular justification than those encountered previously. Particularly, those rules so justified are not justified *always*, but only with respect to the evidential system first assented to; and, unlike conceptual roles on Boghossian's account, evidential systems do not necessarily provide some semantics or meaning for the connectives employed.

These features will come back again in chapter four, but it can be said here that there is a way of employing rule-circular justification which will not depend on some semantics for the logical connectives beyond their introduction and elimination rules, and which depends on logical application—one has to first take up some evidential system to employ in the world for their rule-circular justification—qualities which I will argue are helpful in answering our three issues. Now we may move on to the type-1 skeptic, noting that Field does address Carroll's Tortoise.

Discussion of the type-1 skeptic, unfortunately, has effectively the same features as the discussion of Tonk (and there is a sense in which the skeptic's challenge here might be rephrased: 'I accept this evidential system with Tonk. Why should I accept your system with the conditional?'). The non-factualist does not provide any grounds on which to say that some evidential system must be used or some other other evidential system must not be used; and so, all that is available to convince the type-1 skeptic is the notion of 'success' and any epistemic values they might otherwise have (reliability, power, and so on). That some system, and so some implicated rule, is successfull and so epistemically useful. In other words, we attempt to convince them on the basis of the background inductive reasoning; but, it was shown that little common ground is available when appealing to inductive reasoning, and one is, in principle, unable to convince the skeptic. Again, Field does not find this to be a problem, it is simply the consequence of non-factualism.

I propose that there are two fronts on which the non-factualist may attempt to salvage modus ponens from the skeptic. The first is to argue for it's being default reasonable, and the second, which Field acknowledges, is to move to the meta-argument about which epistemic goals are the right goals to have. Is there any hope for saying that since logic is a properly a priori concept, that we might be forced to accept modus ponens?

Given that the 'indispensability' of logic on Field's account was so liberally understood,

it would seem the answer is 'no.' Tonk might not be plausible 'without empirical evidence,' and modus ponens might, but there are at least three issues with thinking this will resolve the skeptic's doubt. First, sometimes Tonk will lead from accepted premises to true conclusions. So, even if the connective is not *default* reasonable, luck might have it that it is a posteriori reasonable. Of course, this would only last for a short while (since inevitably Tonk arguments will chalk up more false conclusions than true ones), but nonetheless it is a possibility—and more importantly, a possibility the non-factualist allows.

Second, evidential systems aren't constrained to containing only those notions which are reasonable, or even only a priori concepts. Indeed, evidential systems are so broadly construed that they contain our inductive reasoning, some deductive reasoning (which allows us to understand what entailments are licensed in the system), certain premises or theoretical laws, and presumably some explicit or implicit inclusion of an individual's epistemic goals. Consequently, 'people usually tell the truth' is as justifed as modus ponens, insofar as it is assumed in an evidential system one employs; and so, the conditional might very well be default reasonable while Tonk is not, but it would appear that no one is forced to assent to the use of modus ponens *if they reject the evidential system.* And third, there is a sense in which it is actually quite difficult to say that Tonk is not default reasonable: certainly, disjunction introduction and conjunction elimination are default-reasonable. What then is needed is some specification of a quality that these rules have together that would not be default reasonable, and this a little more difficult to find.[33]

Field's strongest line of argument on this front would be to say that Tonk neither plausibly describes the world without empirical evidence, nor plausibly tells one what follows from what. So, when discussing the indispensability of deductive logic, we appealed to the question: "what does this evidential system entitle us to infer?" Though Tonk does, in the most literal sense, answer this question (one is entitled to any conclusion), one might contest that *this* is not 'default reasonable.' However, the moderate relativism non-factualism leads us to would show that this is really an argument about goals—can the goals which call for the Tonk connective in the evidential system be shown to be bad?

And so, to shift to the meta-argument about goals ('one *ought* to accept this epistemic

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[33]Of course, many have attempted to find such an idea. Earlier, for example, we saw Hale forward the criterion of soundness, but this subsequently raised epistemological issues about undoubtability and 'rational insight.'

value'), there may be some route to common ground with the skeptic; at least, Field takes this to be a possibility: "If it's a moral ought that's at issue, fine: I'm not opposing moral standards on which one ought to aim for the truth."[34] Unfortunately, finding such a moral force is far beyond this thesis and, arguably, the epistemology of logic. It is difficult, at least, to see how Tonk or the conditional operator have any quality of morality independent of our use or further considerations. And if one attempts to find some epistemological ought to constrain the construction of evidential systems, then Field concludes one has committed a category mistake, for "on the usual understanding of 'epistemological oughts' they govern beliefs, not goals, and I have no idea what the sort of epistemological ought that governs goals could amount to."[35] It would seem the skeptic wins again.[36]

There is one positive thing to take away from this 'category' answer though: the idea that there may be more than one *kind* of thing in play. Earlier in the chapter it was mentioned that Field used 'epistemic goal' as a type of catch-all for varying parts of our

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[34]Field (2000), pg. 141-142

[35]Field (2000), pg. 142

[36]It may be the case that there are other kinds of goals to consider—namely, pragmatic ones—and that it is too quick to close the book on this issue here. (My thanks to Nick Ray for making this line of reasoning apparent to me, and with great clarity). Unfortunately, I do not have the space to expand in detail on this matter, but a few brief remarks might be made. First, the 'pragmatic ought' could be formulated so: "given one's stated goals, then one ought to choose, or ought not to choose, some evidential system, e." Then, the epistemological oughts would govern what one should believe given an evidential system, the moral oughts would govern what goals one should take to be important, and the pragmatic oughts would govern what evidential system one picks to match their goals and so, consequently, constrain their beliefs. Interestingly, this could be read implicitly in Field's discussion.

The moral ought governing one's seeking truth might refer to a truth-related goal, but it might also refer to one's selection of systems given other goals. We can see, for example, how 'reliability' questionably plays both roles: reliability might be a goal we *just have*, but it might also be a goal we have when choosing our system (that our system is reliable for, or relative to, those other goals). Since Field supplies no reason to believe that reliability is a 'must-have' goal, we then might call into question that pragmatic ought which would select those systems which 'match' our goals. It is, of course, seemingly non-sensical to claim certain goals and then, by some invoked pragmatic ought which does not involve something like reliability, choose evidential systems which do not get one closer to satisfying those goals; but, Field's presented dichotomy of oughts allows exactly this line of reasoning. Furthermore, this raises an interesting explanatory question: if there was a common pragmatic ought for us to select that system which 'worked' for our goals (say, reliability) *and* this turned out to always mean selecting systems which involved some particular logical connectives or concepts—always pick systems with universal quantification and the conditional, say—then one might wonder what explains the consistent usefulness of those connectives or concepts. There would be a hint of something 'miraculous,' as Eugene Wigner found the applicability of mathematics in the physical world to be, about those logical concepts implicated (See: Wigner (1990)).

evidential systems and practice. There, the distinction between epistemic domains and epistemic values was introduced. Non-factualism of the sort Field presents is incapable of answering the type-1 skeptic, or barring the use of Tonk, because there is no common ground on which comparisons may be made for evidential systems, and this can be succinctly described by the inability to find an epistemic ought which would constrain goals; however, it is less clear that we might not find an epistemic ought which might constrain domains *or* values. In the next chapter, I will present an amended non-factualism based on this distinction between epistemic goals and the discussions from our previous chapters.

Chapter 4

Non-Factualism$^+$: An Amendment

Non-factualism as presented in the last chapter seemed to fall prey to the lack of common ground; an issue that we also saw Boghossian's conceptual role semantics face in chapter one. Boghossian went so far as to name a principle, (UAR),[1] and then, surprisingly, reject it. For conceptual role semantics, it was impossible to ever persuade a type-1 skeptic with logic. On the other hand, Field attempts to avoid this dramatic conclusion by presenting the olive branch that epistemic promiscuity does not lead to a growing population of radical thinkers; and quoting Richard Jeffrey on the matter: "The fact that it is legal to wear chain mail in city buses has not filled them with clanking multitudes."[2] Were skeptics everyday commuters this might suffice, but what is called for here is either a great deal of patience for the diversity of evidential systems (for those which contain Tonk and those which do not contain modus ponens) or some shared arena by which to compare systems and make progress; else, Field, like Boghossian, will have to admit the impotence of logical persuasion. However, while Boghossian was forced to reject (UAR), it is not clear that the non-factualist is forced to reject the *principled* possibility of common ground. Field uses the notion of an epistemic goal to capture the vast majority of concepts, properties, and principles of evidential systems, but I argue that this misses a distinction between epistemic domains and epistemic values—a distinction which will carry the potential for non-universal common ground.

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[1]Recall, UAR: If something is a genuine reason for believing that p, then,... its rationalizing force ought to be accessible from any epistemic standpoint.

[2]Jeffrey (1983), pg. 145

First, to reiterate the distinction: I take epistemic domains to determine the boundaries of what one wants to know, or know about; and I take epistemic values to determine those qualities one is interested in their evidential system possessing (again, like reliability or power). Epistemic values can broadly be described as dispositions one has in their inquiry. And here we might see that Field's concerns and points are apt: it is difficult to see how we might have an 'epistemological ought' for dispositions; that to argue about one's dispositions is likely a moral ought; that even without some metaphysical constraints we can still evaluate each other's dispositions even when these evaluations are idealizations (though this evaluation will be moral not epistemological); that there is no fact of the matter about what reasonable dispositions there are to have or not; that every evidential system will be relative to our dispositions; and so on.

In other words, Field's attempt to describe 'epistemic goals' was really to describe epistemic values. It is not clear that all of the same things can be said about epistemic domains. Particularly, I argue that epistemic domains are not relative decisions—they *cannot* change from person to person—and that epistemic domains have a different conceptual relation to epistemic oughts than, at least, epistemic values.

Epistemic oughts, Field notes, would have to determine 'what one believes' rather than (in the case of moral oughts) 'what one's goals should be.' However, one might recall, evidential systems are defined as "a bunch of rules governing what to believe in what circumstances."[3] It would seem then, that epistemological oughts are not so inconceivable, rather they are the evidential systems we adopt. *Once adopted* we are 'stuck' with only those inferential rules available to the system, entitled only to those conclusions made by applying those rules, and justified in doing so for as long as the evidential system remains accepted.

It is imperative to carve out which components are actually *necessary* to an evidential system, so that it may be clear what one ought to believe and why.[4] Given Field's description, an evidential system is seemingly composed of five parts, but I will contest that only one is actually necessary in any significant sense. Furthermore, there also appears to be the mistake of assuming that all of these parts are component within the evidential

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[3]Field (1996), pg. 362
[4]Something Field unfortunately neglected to explicitly do.

system, rather than being invoked in all situations, but not as a part of the system. So, an evidential system on Field's account contains:

1: A method of inductive reasoning

  – Bayesian statistics, a set of probabilistic axioms and derived functions, etc.

2: Any related epistemic values

  – Simplicity, Reliability, Power, etc.

3: Claims taken for granted

  – A set of statements that have a definite truth value (i.e. the laws of physics)

4: A deductive system

  – A reading of the turnstile and set of connectives

5: An epistemic domain

  – A universe of discourse

All according to the non-factualist: We are fundamentally probabilistic reasoners, so a method of inductive reasoning will always be necessitated, even if in all cases it is 'merely' that method fundamental to us. (Though, note, this does not commit one to a universal method, only the presence of a method). The deductive system and those claims we take for granted determine the possible conclusions we are entitled to inferentially; and without this deductive capacity we could not know what our system licensed. And finally, epistemic values and the epistemic domain set 'the agenda:' what do we want to know about, and what qualities is one interested in satisfying? However, I will presently attempt to show—considering each item in order—this picture of the evidential system to be problematic.

First, it does not appear that inductive reasoning is necessarily *within* the the evidential system. It might be the case that the circumstances seem to call for some inductive method to be specified, in which case there certainly will be some inductive reasoning component, but this need not always be the case. Inductive reasoning is best described, in the spirit

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of Field's position, as a tool we fundamentally use to make sense *of* evidential systems generally. It is how we compare systems—more confidence in this one than that one. Furthermore, and more importantly, two people can have competing inductive methods and still make sense of the fact that they are comparing like systems. So, except in some very special cases, or when attempting to compare results according to the inductive methods invoked, one is *free* to choose their preferred inductive reasoning, *if any at all*, according to their goals.

Similarly, for the second category of epistemic values, it is a stretch to see these as principles *within* an evidential system. When one assents to an evidential system they are doing so according to their epistemic goals, which we established to be, if not contain, epistemic values. Two people can have competing epistemic values and still make sense of the fact that they are comparing like systems.

The third part concerns those propositions we take to be axioms. Here one might think of 'the laws of physics.' Principles of this sort appear to fit better within an evidential system (at least, it is not clear that these axioms are part of our epistemic goals), they determine what are permissible or impermissible things to deduce in the evidential system—if one takes for granted that p, then assuming they also employ, say, the law of non-contradiction, that evidential system would never entitle one to $\neg p$. Note, however, neither must one take anything for granted when they assent to an evidential system nor must they take the same claims for granted as someone else—certainly, 'the laws of physics' are not settled. So, it would seem, axiomatic claims are parts that rightfully belong in evidential systems but are not necessary. There may be disagreement between two people about which claims to take for granted, and yet still compare their systems; one is, again, *free* to choose.

The fourth part is something we certainly see as part of the evidential system:[5] without a deductive system we cannot begin to make sense of what our evidential system will

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[5]There is the further discussion, brought up previously, about the difficulty in squaring the derivation of inductive rules without a deductive system, but this point can again be left to the side. For even if it were the case that some deductive system was implicit for us globally and 'necessary' in this sense, it does not follow that the deductive systems employed within evidential systems would have to match that fundamental one we already possess. This would, of course, undermine the whole project laid out and raise all manner of concerns seen in Chapter 2 about how we come to know those principles involved in the 'indispensable kit.'

determine. But, again, one might note that there can be disagreement here: one is free to choose which deductive system they prefer. This is precisely what the type-1 skeptic does, for example.

This leaves the final component: epistemic domains. Understanding these domains as our universe of discourse should help to make it apparent how they differ from the other parts. For starters, they do not immediately seem to be contained by evidential systems: they are neither the circumstances in the world, nor are they a rule we infer by; rather, they set the boundaries of what an evidential system is *about*. And here we may now see how they stand apart from all the other components as well; if two people differ in their universe of discourse then it is difficult to see how they might compare results at all. Every other choice may be cashed out in terms of what epistemic goals one has (or more particularly, epistemic values if we assume the only epistemic goals are values and domains), but if one changes their universe of discourse then no comparison is possible—the two systems are being applied to different domains.[6] There are inevitably some special cases to such an idea,[7] but if it can be said that at least the epistemic domains of two systems must be the same for one to compare them, then we can begin to make progress.

So, our evidential systems are not made of five components but instead contain: three

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[6]It is tempting to say 'applied to different circumstances' here, but one must be careful to distinguish between those circumstances which are actual, and which may be captured, or not, by the 'domain,' which is rather the conceptual boundaries one sets up for possible circumstances.

[7]Particularly, there are three cases I can immediately spot. The first is when the universe of discourse for one evidential system contains the universe of discourse of the other system, i.e. when one system is more broad than the other. One might be temped to say that here an epistemic value about reliability or power would come into play, but this would subsume epistemic domains under epistemic values—would mean that the epistemic domains as goals depend upon our epistemic values. Instead, since we are attempting to *fix* the domains, any evaluations according to our epistemic values should be of the consequences of the evidential system or our inductive reasoning about the evidential systems but *not* the domain itself. So, if one epistemic domain contains another, this means nothing more than if you had two epistemic domains who had no common elements. Different domains, different systems.

The second and third are the cases where the universe of discourse is 'full' and empty. Taking 'full' to mean something along the lines of, 'the universe of discourse which specifies exactly all things to infer about,' I can only conclude that the systems involved and so compared would be so radically different, and that there would be so many to compare, that one would have to concede a 'not-so moderate relativism' of the sort faced in chapter three. However, to even begin entertaining this hypothetical brings to the fore well-trodden paradoxes—for instance, a set of all sets. And in the case of the empty universe of discourse, I would argue that there is no application at all, and so no comparison to be made. What would it mean to apply an evidential system to nothing?

functional parts, one set of principles the system is contingent upon, and a 'domain of applicability'. There is the necessary deductive system, and the unnecessary (in that they may permissibly be 'empty' or otherwise non-existent) axioms and inductive reasoning. Each of these three parts may be changed freely. There is the set of epistemic values, one of the sets of principles, which are *relative to the individual* who is selecting the evidential system. And finally, there is the epistemic domain which specifies exactly what the system is allowed to be applied to. This make-up of the evidential system will allow us to address the skeptic, but first the notion of applicability will have to be unpacked, since, evidently, a lot rides on it.

In the last lesson of section 2.4, it was noted that we should consider the introduction and elimination rules as a sufficient semantics for the connectives, and that Russell's assertion and reference distinction might help us understand how assent functions with logical statements. There are those logical schema which we can reference in abstract but when we go to assert them in the world we are doing something quite different. Regarding this difference, Russell says:

> "It is plain that, if I may be allowed to use the word *assertion* in a non-psychological sense, the proposition 'p implies q' *asserts* an implication, though it does not *assert* p or q. The p and the q which enter into this proposition are not strictly the same as the p or the q which are separate propositions, at least, if they are true."[8]

Russell then advocates for a purely logical notion of '*therefore*,' which would solve the subsequent issue of how unasserted propositions can justify asserted propositions (answer, in effect, Carroll's Tortoise); but what I would suggest here is that there is an epistemic (though not necessarily psychological) way of cashing out assertion and reference. When we take on board an evidential system and a universe of discourse, we are implicitly making a further claim about the deductive systems we employ; namely, that they apply to *the world*—that some $p \rightarrow q$ statement actually maps on to those phenomena in the universe of discourse we are concerned with. Subsequently, when thinking in non-factualist terms, rule-circular justifications are not for the rule 'in abstract,' but for the rule's application to the

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[8]Russell (2009), §38

circumstances; and this better explains why the rules we provide rule-circular justification for 'are not justified *always*,' for they are domain relative. The justifcations are not just contingent to the evidential systems in a broad sense, but also to the particulars of the universe of discourse; and these particulars provide feedback in the form of our conlusions being true or false—our mapping of actual worldly relationships into logical ones being apt or not.

Now, regarding our guiding issues, we may see how these amendments fare. The type-2 skeptic was handled to begin with, so no further commentary is needed there, but non-factualism still needs some way of addressing Tonk and the type-1 skeptic. Given that we know Tonk to be at least principally permissible, I will run the two issues together in this conclusion for convenience: how do you convince someone who uses Tonk, to use the conditional? The moderate relativism of Field's non-factualism meant there was no non-moralistic argument against one who uses Tonk because there was no common-ground, no way of appealing to some shared inductive reasoning or, obviously, deductive system, to show them why using Tonk is a bad idea. However, by fixing the universe of discourse over time, it is possible to 'count the truths' in a straightforward manner. One need not appeal to inductive confidence values or to epistemic values about power or reliability, for there is an emergent ratio of true conclusions to untrue concusions for each system. This has a number of consequences, but here I will note two which I see to be pertinent.

First, as noted in chapter three, if there is no principle behind what the standing of some evidential system need be for it to be reasonably employed (a particular confidence level or probability, etc.) then it is diffcult to see how 'counting the truths' can help. True though that may be, there are many ways of understanding what 'better' means; and on this account, once the domain has been fixed, there is the *undeniable* common ground that one evidential system has more truths than another (or not), within that domain. Perhaps that would not stop a skeptic entirely from refusing to switch systems—they may insist on trying out more and more different evidential systems with the same universe of discourse, or insisting on a different standard of 'better' (a different threshold)—but where we were entirely lost before, we have now found one footing. Non-factualism is looking to *the long run* to show that some evidential system is better. Unless we invoke a new type-3 skeptic, who will say that truths do not count positively towards an evidential system, then it

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would seem that we have cornered off one of the type-1 skeptic's escape routes.

Second, one might think that the type-1 skeptic has the potential to retreat to a different universe of discourse, but this would fail for two reasons. (1) It is precisely by fixing the universe of discourse that we have the potential for common ground—if we are to move to another universe of discourse, then fine; Tonk will likely do no better and we are right back where we started, counting truths in a different domain. (2) If somehow there was a universe of discourse where Tonk did resoundingly well and the conditional failed, this would not count against any other system *which posits a different universe of discourse*, for there is no sense in which one is now comparing like systems. If such a myserious domain were found, then the type-1 skeptic would better be understood as the individual who refuses to assent to Tonk and argues instead for the conditional. In effect, the position here is not arguing for the conditional directly—though, I take the liberty of assuming that this argument is an arugment in favour of the conditional—but instead, for those connectives which 'fit' the domain best: quantum logic for quantum phenomena, classical logical for classical phenomena, and tonk-logic for tonk-phenomena.

Here I have tried to advance the non-factualist approach to answering the logical skeptics, even if only minimally. I have not eliminated all doubts, but instead limited those available doubts the skeptics have. Unless one is going to argue that truth has no bearing on one evidential system being better, then there both is a route to common ground among evidential systems and a persuasive force.

Chapter 5

Conclusion

We began with three simple problems: the nagging bad company of logical connectives which seem well-specified, but which trivialize our endeavours; the Tortoise who claimed to agree with our logical concepts but refused to conclude in accordance with them; and the yet worse skeptic who denied the efficacy of our logical concepts *tout court*. And no position considered was capable of answering all three without issue. Here, I have proposed a modification to non-factualism in the form of a distinction between epistemic domains and epistemic values, providing common ground on which to address the logical skeptic. While the amended non-factualist position does not definitively address the issue, it is largely an epistemically feasible project and the distinction proposed does limit the argumenative capacities of the skeptic.

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