Logic and the Laws of Thought

Jessica Leech

Department of Philosophy, University of Sheffield

1 Introduction

An approach to explaining the nature and source of logic and its laws with a rich historical tradition takes the laws of logic to be laws of thought. Such an approach can be found in Kant's work, particularly Kant's lectures on logic and his *Critique of Pure Reason* (Kant, 1992, 1998), and in the work of Boole and Frege. In the case of Boole (1854), the clue is in the title of his book: *An Investigation of The Laws of Thought on Which are Founded the Mathematical Theories of Logic and Probabilities*. MacFarlane (2002) presents an interpretation of Frege's views on logical laws, whereby they are not straightforwardly laws of thought, but give rise to such laws. Both Kant and Frege placed themselves in opposition to psychologistic logicians who took logic to be a matter of how we actually think. They were interested not in how we actually reason, but in how we *ought* to reason.

> In logic we do not want to know how the understanding is and does think and how it has previously proceeded in thought, but rather *how it ought to proceed in thought*. (9:14, Kant, 1992: 529, my emphasis)

> The [laws of logic] have a special title to the name "laws of thought" only if we mean to assert that they are the most general laws, which prescribe universally *the way in which one ought to think if one is to think at all*. (Frege 1893, xv, translation by Textor 2011, 20–21, my emphasis)

The view that laws of logic are laws of thought seems intuitively compelling; after all, logic seems to be intimately related with how we think. But how exactly should we understand this claim? And what argument can we give in favour of it? The aim of this paper is to propose one line of argument for the claim that the laws of logic are laws of thought. First, I will clarify what this claim amounts to, *i.e.*, whether the claim concerns laws as normative or constitutive. Then, I will motivate the claim that there is a certain phenomenon, namely that there are logical principles which are immune to rational doubt. This will

involve drawing together work from several sources to present an overall case. So whilst much of the paper may appear to present the views of others, the intended contribution is to show how this work can be collected into a single line of thought, proposed here. The heart of the paper will then be an argument to the best explanation; I will argue that the best explanation of this phenomenon is to take the laws of logic to be constitutive-normative laws of thought. My proposal, and some responses to potential objections, will have a notably Kantian flavour.

2 Laws of Thought

Before considering what a law of thought might be, I should clarify what I will mean by 'thought'. I have in mind a conception which includes something as minimal as 'entertaining a proposition', as well as more robust thoughts such as 'opining that p', beliefs, propositional knowledge, drawing inferences, and so on. The core idea is that some propositional content should be involved. So, for example, cases which are not obviously propositional, *e.g.*, cases of mental imagery, or trying to remember a melody, will count as cases of thinking in my sense only if they are accompanied by some propositional content. This isn't a very demanding condition; *e.g.*, in trying to imagine a scenario, I may often have a description in mind to guide my imagining, which is propositional in form. If the reader nevertheless takes this to be too strong a condition, then the present discussion should be read as being about laws of propositional thought. I take it that this is still a sufficiently wide-ranging phenomenon to render the laws of such a phenomenon philosophically interesting.

There are three crucially different ways one might understand a candidate law: *constitutive*, *normative*, or *constitutive-normative*. A *constitutive law* tells us about the nature of a thing. Constitutive laws for Fs function to separate the Fs from the non-Fs. These kinds of laws tell us what is and is not possible for Fs. *E.g.*, consider the view that rules of inference are constitutive laws in this sense. So the rule *modus ponens* will tell us something about the nature of inference (or implication). If someone reasons incorrectly, and does not conform to any rule of

inference, they will not count as inferring. They tried to perform an inference, but did not succeed. Rules of inference tell us what we can infer: *e.g.*, from P and P $\supset$ Q, one may infer Q. Of course, if we choose to follow a different rule, and conclude P & (P $\supset$ Q) from the same premises, we are not violating *modus ponens*, but following *&-introduction*. But if no valid rule of inference is followed, then on a constitutive understanding, no inference has taken place.

By contrast, *normative principles* tell us only how things *ought to be*, or what we *ought to do*, even if they actually fail to be so, or we fail to do so. Normative laws for Fs function to separate the good Fs from the bad, the correct from the incorrect. These kinds of laws tell us what is permissible and not permissible for Fs. *E.g.*, if we take rules of inference to be normative laws, the rule *modus ponens* will tell us something about *correct* inference. On this construal of laws, if someone attempts to do some reasoning following no valid rules of inference, they may still count as inferring, but as inferring *badly*.

Finally, a *constitutive-normative law* also functions to separate the Fs from the non-Fs, not in terms of whether or not something conforms to the law, but in terms of whether something is *subject to* or *evaluable in light of* the law. So, if rules of inference were to be understood in this way, in order to count as inferring, one's activity must be subject to — *i.e.*, count as right or wrong in light of — those rules of inference. If one were to reason without following any valid rule of inference, but that didn't count as getting something *wrong*, or if one were to reason in accordance with a valid rule, but that didn't count as getting something *right*, then one wouldn't count as inferring.

In light of this threefold distinction, how should we understand "laws" in the claim that laws of logic are laws of thought: as constitutive, normative, or constitutive-normative?

2.1 Constitutive Laws

If the laws of thought are understood constitutively, then they tell us what does and does not count as thinking. If the laws of logic are constitutive laws of thought, then mental activity which conforms to the

laws of logic may count as thinking, but mental activity which does not conform to any law of logic could not count as thought. Therefore, we should be unable to think illogically. This view is committed to our being utterly unable, not merely not permitted, to think illogically. This is just false. We think illogically all the time: we make mistakes in inference and reasoning, we hold contradictory beliefs, we find fallacies convincing, and so on. The constitutivist may reply that when we make such mistakes, we in fact do not count as thinking; there is the mere illusion of thought and reasoning, but we are in fact engaging in some distinct mental activity. However, this kind of response cannot be maintained.

First, we are often able to recognise our logical mistakes, either by ourselves or through the help of others, and go on to correct ourselves in a reasonable way. Suppose someone makes a logical error, but is corrected. It is plausible to assume that reasonable thinkers are capable of recognising where they went wrong and adjusting their reasoning accordingly. However, if what one does when one makes a logical error isn't even *thought*, how is it that one is able to rationally reflect on what one is doing, and relate it in a suitable way to genuine, logically correct thoughts, in order to correct mistakes and transform one's activity into correct inference? I contend that it doesn't make sense to characterize such cases in terms of two different kinds of mental activity, thought and something else. Rather, this is simply a case of mistaken thought and inference, followed by corrected thought and inference.

The point can be made in relation to one particular candidate law of thought (logic), the law of non-contradiction. Understood as a constitutive law of thought, this is supposed to represent how we in fact always think, *i.e.*, that no thought is contradictory (of the form p&¬p). Any purported instance of a thought that p&¬p will violate the law, and hence should not count as thinking. The implication is that we cannot even entertain propositions with such a contradictory content, but we can.

First, one might appeal to anecdotal or introspective evidence: Doesn't Graham Priest think several contradictions before breakfast?

Second, one might argue that if I can perfectly well think that p, and I can perfectly well think that ¬p, why should thinking them in sufficiently close proximity prevent me from being able to think either one?

More seriously, one might ask, if we can't think a proposition, how can we know that it is a contradictory proposition? Similarly, it is often claimed that contradictions are false. But how can we determine that a proposition is false if it cannot be thought? Can we even make sense of there being a proposition at all?

Perhaps we could take not being able to think the proposition as evidence for it being contradictory. However, it might be illogical for other reasons, or it might not be a well-formed proposition. So such evidence is inconclusive. Alternatively, one might introduce a distinction between a genuinely contradictory thought, *that p&¬p*, and a thought about a contradiction, *that the proposition that p&¬p is contradictory*.[1] One might agree that the first is literally unthinkable, but that the latter is not ruled out by the laws of logic, and hence allows us to recognize cases where the unthinkability of a proposition is due to its being a contradiction. If this latter, thinkable kind of proposition is also all that is required to assess and correct logical mistakes, then the previous point about correcting mistakes would also fail. We would not need to be able to directly think contradictions in order to recognize contradiction, nor to correct it.

However, the problem with this proposal is that it still isn't clear how the thought *that the proposition that p&¬p is contradictory* could interact appropriately, as part of a rational process, with a mistaken pseudo-thought that p&¬p, if the latter is not a *thought*, but something else. If I do something with the content p&¬p, and if that isn't a thought, then it isn't subject to the laws of thought. So what if I also think that the proposition that p&¬p is contradictory? The laws governing my thinking might well require, in the light of this thought, that I reject any thought of the form p&¬p. But according to the constitutive account, if I make this kind of mistake, there is no thought to be

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1.   Thank you to an anonymous referee for raising this point.

corrected. I'm left with my mistaken pseudo-thought, and no logical means to reject it. It may be that the thought *that the proposition that p&¬p is contradictory* can interact with my mistake in other ways: for example, there might be a causal link between this thought and the subsequent loss of the contradictory pseudo-thought. But anything other than a logical relation between thoughts isn't going to count as a rational, logical process of correction. It seems plausible that we should be able to correct our logical mistakes *rationally and logically*, not due to other, perhaps merely causal, processes. Hence we face the problem again, that to account for our rational recognition and correction of logical mistakes, we need to be able to *think* contradictions.

We should not claim that contradictions are unthinkable, in the sense that we are literally not able to think them.[2] In short, understanding laws of thought as constitutive will not provide a suitable account of laws of logic as laws of thought, because we break the laws of logic all the time when thinking.

2.2 Norms for Thought

The broad alternative to a constitutive reading of laws of thought is a normative one. A "norm" provides a rule, or a standard, or a prescription for behaviour or action, which may or may not be followed. If a norm is not followed, this is accompanied by a notion of somehow being *incorrect* or *wrong* or *liable for punishment*. Likewise, following a norm is deemed as being *correct* or *right* or perhaps *liable for praise*. Some object or phenomenon is *normative* if it provides reasons, standards, prescriptions, rules, etc. for what to do. A normative law of thought, then, will provide reasons, obligations, permissions and the like to think in certain ways. Note that these laws may come apart from how we in fact think and reason: we may often fall short of what we ought to do.[3]

However, the story does not end there. One can always ask: *Why* does something provide reasons for something else? And there are different answers to this question. There are a number of different ways something might be normative. Hanna (2006, section 7.1) highlights some helpful distinctions. In particular, the normativity of something X might be an *intrinsic* or *extrinsic* feature of it.[4] If X is extrinsically normative, X depends for its normativity on something else external to it. *E.g.*, logical laws might be *intrinsically non-normative*, *e.g.*, a purely descriptive science of truth-bearers, but nevertheless provide norms when considered in relation to other interests or practices (such as the need to preserve truth when engaged in empirical science).

How might it be that some principles are normative laws of thought? They might have extrinsic normativity, *e.g.*, if there were a norm directly governing thought, to aim for the truth, and logical principles served that aim by preserving truth. However, this kind of extrinsic normativity would render laws of logic normative laws of thought only insofar as there are more fundamental norms of thought. If the norms directly governing thought were different, *e.g.*, if thought were to aim at happiness (even at the price of self-delusion), then the laws of logic might not provide laws for how we ought to think after all. The laws of logic, by this view, are independent of thought. So if the norms directly governing thought were to change, the laws of logic would not. They would merely cease to be relevant to our thinking. In exploring the prospects of a laws-of-thought account of logical laws, then, this kind of view doesn't help. We are left needing an account of the intrinsic nature of laws of logic, apart from any extrinsic normative force they have for thought.

A more promising approach is to consider the laws of logic as more directly connected to thought, with no intermediary norm. The laws of

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2. See Priest (1998a,b) for more detailed arguments against thinking that contradictions have no thinkable propositional content.

3. Sometimes normativity is also closely associated with value. In this paper I will use only the sense of 'normativity' which implies the presence of

standards or prescriptions, and not make any claims regarding the value of, *e.g.*, thinking logically.

4. How exactly we should understand the intrinsic/extrinsic distinction is a thorny issue, but the rough idea that intrinsic features are to do with how something is "on its own", and extrinsic features to do with how other things are, should suffice for present purposes.

logic, whatever they are, directly constitute norms for how we ought to think.[5] Ultimately, I shall argue that there is a phenomenon — rationally indubitable logical principles — which is best explained if the laws of logic provide constitutive-normative laws for thought, such that if one is not subject to these norms, one is not thinking. This should also serve to rule out a view where logical laws are extrinsically normative: this would require that there be an external element determining what constitutes thought, beyond thought itself. Unless one wants to postulate some kind of God decreeing what it is to be something,[6] I do not see what such an external element could be.

3 Logic and Rational Indubitability

3.1 A Logocentric Predicament?

Why think that the laws of logic are laws of thought? The strategy of the following will be something like an argument to the best explanation. I will first argue that there are principles that thinkers are not able to rationally doubt. The challenge is to then provide an explanation of this phenomenon. I will argue that one very good explanation is that the laws of logic are constitutive-normative laws of thought. I will contrast this with other views of laws of logic, which I argue cannot provide a satisfactory explanation. I will not have space to explore every possible explanation, and hence I can't quite claim that my "laws of thought" explanation is the *best*, but I will conclude that it is at least *very good*, and *better than* the others I discuss.

A similar phenomenon in the vicinity is the so-called "logocentric predicament", the circumstance that we find ourselves in when we try to give an account of logic but are bound to use logic in doing so.

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5. There are two ways one might understand 'we ought to think in accordance with the laws of logic'. Either *we ought to think in accordance with the laws, whatever they are*, where the laws are described and not specified, or *we ought to think in accordance with law L1, law L2, etc.,* where the laws themselves appear in the law of thought. In this present case, I mean the latter.

6. Which I don't.

[T]he attempt to formulate the foundations of logic is rendered arduous by a … "logocentric" predicament. In order to give an account of logic, we must presuppose and employ logic. (Sheffer, 1926: 228)

Such a predicament is to be understood in terms of *justification*. Often, when giving a justification of some or other practice or rule, we will employ logical reasoning. But how then can we justify the validity of logical rules? It doesn't seem right to use the very thing to be justified in its justification, and so it doesn't seem right to use logical principles to justify logical principles. But then, how else can we provide a justification? This is the kind of logocentric predicament discussed by Hanna (2006).[7]

The present paper can be understood as largely inspired by Hanna's treatment of these issues, but as taking a notably different direction. Opinion is split regarding whether we really need to give a genuine justification of deductive logical rules. For example, Dummett offers a distinction between suasive and explanatory arguments. A suasive argument is intended to persuade someone, already believing the premises, of the truth of the conclusion. In contrast, an explanatory argument seeks to explain why a conclusion is true, by appeal to the premises, where the conclusion is already known or taken to be true (see Dummett [1973, 1978]). Whilst it does seem illegitimate to use a rule in an argument which is intended to persuade someone that the rule is valid (in a suasive argument), nevertheless, Dummett claims that there is no problem for using a rule in an argument which is intended to explain why the rule is valid to someone who already accepts its validity (in an explanatory argument) (see Dummett [1973, 1978]).

One may rest content with Dummett's retreat to explanatory arguments for justification of rules of deduction, or one may still wonder what it is about deduction that appears to rule out the kind of suasive justificatory argument that it is possible to give in so many other

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7. See in particular Hanna (2006: 54–55).

circumstances. But rather than engage with this controversy, I want to focus on a prior "predicament" — one not of justification, but of doubt. The claim is that there are some logical principles *that do not admit of rational doubt*, or if they do, only at a prohibitive cost.[8] There is an important sense in which one cannot properly even *question* these principles. This is a striking fact about our ability to reason and question, which demands explanation. Why do certain principles have such a binding effect on our thought? Note that if one cannot doubt a principle, the task of justifying it seems rather premature. If we cannot even coherently raise doubts about the validity of certain principles, how can the task of (suasive) justification of those principles even get going? So the rational indubitability of logical principles may be able to account for our inability to properly give a justification of them. But the deeper predicament is the rational indubitability of a principle, not the seeming redundancy of a justification for the principle. Why do logical principles, and seemingly no other kinds of principle, have such a hold on us? Such a phenomenon invites consideration and explanation. But before I can answer this question, I must first motivate my claim that we are indeed in such a predicament.

3.2 The Minimal Logical Toolkit

In "Basic Logical Knowledge", Hale argues that there is a "minimal toolkit" of logical principles that are involved in the very practices of doubting and reasoning about the soundness of logical principles. Hence, it makes no good sense to doubt the soundness of these principles.

The main target of Hale's paper is to consider "whether there is any basic logical knowledge and if there is, how this is possible" (2002: 280),[9] but he also addresses a related issue: that of "explaining *why it is not possible intelligently* (*i.e.*, clear-headedly and coherently) *to doubt* the soundness of basic rules such as [*modus ponens*]" (Hale, 2002: 289).

8. By *rational* doubt, I mean to rule out simply stamping one's foot and refusing to trust a principle, even in the face of compelling reasons to the contrary.

9. Logical knowledge is understood as knowledge *about* logic, not knowledge arising out of the *use* of logic (*i.e.*, not inferential knowledge).

His argument is based on the idea that, if part of what it is to understand a logical constant is to accept certain principles of inference concerning that logical constant, then to doubt these principles will amount to misunderstanding the logical constants. So there is no room for intelligent or rational doubt of these principles, as opposed to just missing the point.

> The fact that acceptance of (at least sufficiently simple instances of) basic patterns of inference featuring a logical operator is (at least partly) constitutive of understanding that operator has an important consequence — it means that one cannot regard anything which is recognisably an instance of the relevant inference pattern as unsound without convicting oneself of misunderstanding. (Hale, 2002: 290)

First, Hale considers cases which look like genuine doubting of a candidate principle by a suitably intelligent person, such as McGee's attack against *modus ponens*.[10] McGee's strategy was to give counterexamples to the rule; however, these are all of a certain complexity, of the following general form (of which McGee himself is aware).

If φ, then if ψ then θ;

φ;

Therefore, if ψ then θ.[11]

10. See McGee (1985). See Sinnott-Armstrong et al. (1986), Lowe (1987) and Over (1987) for critical responses.

11. "Opinion polls taken just before the 1980 election showed the Republican Ronald Reagan decisively ahead of the Democrat Jimmy Carter, with the other Republican in the race, John Anderson, a distant third. Those apprised of the poll results believed, with good reason:
   If a Republican wins the election, then if it's not Reagan who wins it will be Anderson.
   A Republican will win the election.
   Yet they did not have reason to believe

McGee does not show that *any* use of *modus ponens* risks being unsound. Rather, the problem is restricted to more complex cases, where the propositions in the inference are themselves of a certain complexity. Hale suggests that with this caveat he can continue with his proposed line of thought.

> So one might continue to take the meaning of the conditional as (partially) constituted by acceptance of *modus ponens* — but in a suitably restricted version. The argument I develop in the remainder of this paper could be straightforwardly recast to suit such a restricted version of the rule. (Hale, 2002: 291, footnote 18)

Is it reasonable to assume such a restriction? Surely *modus ponens* is a simple inference form, blind to the content of premises, and hence blind to the logical complexity of premises? That may be so, but Hale's proposal does not require one to establish that *modus ponens* has restricted application. The point is simply that only (acceptance of) simple instances of the rule need be taken to contribute to understanding of the conditional. More complicated examples may confuse someone, and cause them to question an inference even though it is valid and they understand the constituent parts. Similarly, one would not accuse someone of misunderstanding the plus sign because they systematically make mistakes in complex sums. What counts is whether they can do simpler sums, *e.g.*, '2 + 2 = 4'.

Setting worries about *modus ponens* aside, Hale concludes that on this view of understanding, "one cannot rationally entertain the possibility of counter-examples" to inference rules which are constitutive of understanding of the logical operators (Hale, 2002: 291). A problem is then raised. Why is it that we cannot raise doubts about the validity of rules of inference, such as *modus ponens*, which are constitutive of our understanding of logical operators, yet we *can*, and indeed *should*,

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If it's not Reagan who wins, it will be Anderson.' (McGee, 1985: 462)

raise doubts about the validity of other rules of inference, such as the *tonk*-rules, which arguably are also constitutive of understanding "bad" logical operators, such as *tonk*?[12]

> If one can argue: acceptance of *modus ponens* is required for understanding the conditional, so if a thinker supposes she can envisage a counter-example to it … she must be confused, then one can just as well argue: acceptance of tonk-elimination is required for understanding 'tonk', so if a thinker supposes she can envisage a case in which it would be true that *A tonk B* but not true that *B*, she (too) must be confused. But the tonk rules are clearly duff. It must, therefore, be possible to entertain doubts — indeed, well-founded doubts — about them. So there has to be something wrong with the argument in their case. Since the argument for the conditional rules runs entirely parallel, it must likewise be defective. (Hale, 2002: 292)

What makes the difference? The objection is based on the idea that to doubt the validity of a rule of inference will involve envisaging a counterexample to it. In order to side-step this worry, one need only show how some other way to doubt the validity of a rule of inference is appropriate in the case of tonk-rules, but not in the case of rules such as *modus ponens*. Hale considers what might be involved in doubting or questioning the validity of a rule of inference. He takes it that this will involve *reasoning*. After all, the lack of conservativeness of the "tonk" introduction and elimination rules is hardly something one can see at a glance: one needs to think about it and do some reasoning to realize that. Of course, one might just doubt with brute force, but then the doubt will not be rational or reasonable, but rather just a mindless

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$$\frac{A}{A \text{ tonk } B} \qquad \frac{A \text{ tonk } B}{B}$$

attitude. Hale has already eliminated the option that a rule R be vindicated by reasoning involving itself, on pain of circularity.[13] So, the reasoning going on in considering and questioning the validity of a rule R will have to involve rules other than R.

> If what I've said is right, *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. It does not, of course, follow from this that there must be *some* rules whose reliability must, and may properly, be assumed in *any* demonstration we can give of the conservativeness or non-conservativeness (more generally, soundness or unsoundness) of *any* (other) rules. It does not *follow*, but it is — or so I believe — *true*. (Hale, 2002: 297)

Hale takes the final step of suggesting that not only will there be, for reasoning about any rule of inference R, some other rule R' which is assumed to be sound, but that there will be some rules which will be assumed to be sound when reasoning about any rule R. Hale points out that this does not follow logically. To think so would involve the same mistake as taking it to follow from everyone loving someone, that there is someone that everyone loves. Nevertheless, it seems plausible.

Some more concrete examples of rules we might expect to employ in reasoning about any rule of inference are suggested — *e.g.*, rules governing the conditional and the universal quantifier.

> Any rule(s) of inference whose soundness we may wish to consider will — or so I think we may assume — be both

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13. In some cases, a rule may be self-refuting, where the use of R itself generates the conclusion that R is unsound. So in such cases circularity would not be problematic. But this argument is intended to apply generally: in general, it would be a bad idea to rely on a rule of inference R when engaging in rational examination of the properties of R.

general and *conditional* — general, in the sense that their explicit formulation 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. Any reasoning *about* what inferences they permit — as distinct from reasoning that simply uses those rules — will, at least if fully articulated, involve reasoning from explicit formulations of the rules …. If this is right, then there is what might be called a *minimal kit* of inference rules — including at least rules for the conditional and universal quantifier — required for any reasoning about the soundness of any rules of inference. (Hale, 2002: 299)

This then gives us the minimal logical toolkit.

In sum, Hale argues that an account of our understanding of the logical constants in terms of (tacit) acceptance of certain inference rules gives rise to the conclusion that, in cases of reasoning about logical principles, there is a minimal toolkit of certain of these (understanding-constitutive) rules of inference which are not open to rational doubt. And so the minimal toolkit provides evidence of the phenomenon that there are some (logical) principles that thinkers cannot rationally doubt.

Hale connects the rational indubitability of some logical principles to our understanding of logical constants. However, it is not clear that a commitment to this view of understanding is required. The understanding-constitutiveness of these principles rules out the kind of doubt which is based on counterexamples: these would simply amount to cases of misunderstanding. But Hale makes a more general point too: the fact that certain principles are involved in any reasoning about logic rules out another kind of doubt of their soundness, namely that based on any kind of reasoning about them. If "doubt by counterexample" involves some reasoning about the rule of inference

under consideration, then it seems that general considerations to do with reasoning about logic will apply in any case. So the theory of understanding need not play as great a role here. If, however, "doubt by counterexample" *doesn't* involve any reasoning, then I fail to see how this can count as *rational* doubt. At least the purported counter-example must be recognized as being of a certain general form, and as having certain unexpected consequences. I do not see how this might fail to involve at least some of the distinctive features of reasoning about logic. So, whilst I am sympathetic towards Hale's underlying commitment to an account of understanding of logical constants, it does not look like such a commitment is required to get hold of the minimal toolkit. I take it that the element of Hale's view concerning the understanding of logical constants, even if it plays no essential role in arguing *that* some logical principles are immune to rational doubt, may provide an explanation as to *why* these principles are indubitable in this way.

3.3 *McFetridge and Belief in Logical Necessity*

A lingering doubt for Hale's minimal toolkit remains: he himself admits that it does not conclusively establish that there is some privileged rule of inference which is immune to doubt in all contexts. Hale's argument leaves it open that, although we always need to hold some inference rule fixed, this need not be the same rule in every case. However, Hale's position can be strengthened by introducing a related line of argument from McFetridge.

In "Logical Necessity: Some Issues" McFetridge can be understood as grappling with two main issues: (1) If there is such a thing as logical necessity, what is it?; and (2) What is the purpose of beliefs about logical necessity? In answer to (1), McFetridge argues that if any notion of necessity deserves to be called *logical* necessity, it should be the kind of necessity attaching to deductive validity (see McFetridge [1990: 136]). More important for present purposes is his answer to (2). McFetridge equates *belief that a mode of inference is logically (absolutely) necessarily truth-preserving* with *preparedness to employ that mode of inference in*

reasoning from any supposition whatsoever. If we can show that there are indeed some modes of inference which we are prepared to employ in reasoning from any supposition whatsoever, then we will thereby show that we are committed to the belief that there are some modes of inference that will preserve *truth no matter what else may be the case*, which will in turn amount to showing that we are committed to the existence of some logically (absolutely) necessarily truth-preserving modes of inference. Note that this conclusion would help to strengthen Hale's position, in confirming that we are indeed committed to the belief that some rules of inference are immune to doubt in all contexts (in reasoning from any supposition whatsoever).

McFetridge's account of the content of a belief in logical necessity can be formulated as LN:[14]

> **LN** There is some rule of inference M such that there is no supposition r such that, if it were the case that r, M would not preserve truth.

And his account of abandoning the belief in logical necessity as a belief in the negation of LN, *i.e.*,

> ¬**LN** For every rule of inference M there is some supposition r such that, if it were the case that r, M would not preserve truth.

There are then two cases subsumed under a belief in ¬LN. First, where it is known, for a rule of inference M, which supposition or suppositions r would prevent M from preserving truth. On this case, the rejection of logical necessity is self-refuting: one can simply amend the rule to specify that it applies under not-r conditions. Second, where it is not known which suppositions will prevent a rule M from preserving truth. But then this would cause irrevocable damage to our practices

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14. "To abandon the belief in logical necessity would be to believe that for every acceptable mode of inference M there is at least one proposition r (it might be a very long disjunction) such that it is illegitimate to employ M in an argument which makes the supposition that r." (McFetridge, 1990: 153)

of reasoning from suppositions at all, because we could never know, when reasoning from any supposition r, via rule M, whether r was the supposition under which reasoning in accordance with M fails to be truth-preserving. Hence we should reject ¬LN and retain a belief in LN.

> I conclude then, that on the present view of what it is to regard a rule of inference as logically necessarily truth-preserving, we are constrained to believe that there are such rules. For if we abandoned that belief, we would be unable to reason from suppositions at all. (McFetridge, 1990: 154)

Is the argument successful? Hale (1999) discusses several challenges. In particular, he notes that McFetridge has assumed that, if one believes ¬LN, one must be assured in any case of reasoning that a candidate rule to be used is co-tenable with the suppositions in play.[15] However, why should this be so? Hale's sceptic retorts:

> Why do you assume that if I am to use a rule R in reasoning under the supposition that p, I must first be able to ascertain whether R is, under that supposition, reliable? I don't have to do that. It is enough that I have no positive reason to doubt that R will fail under the supposition that p. (1999: 32)

The sceptic adheres to the slogan 'a rule is innocent until proven guilty', and feels justified in using a rule until such time as it may be falsified by a particular case of reasoning under a supposition. It isn't necessary to determine whether or not the rule is truth-preserving in all cases before one gets going. Hale accordingly mounts an attack on this "falsificationist methodology", in order to show that this kind of scepticism is not an option, leaving McFetridge's argument intact.

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15. "[C]all the range of suppositions under which the use of a mode of inference M is not questionable … its co-tenability range." (Hale, 1999: 29)

To summarize, Hale's reasoning goes something like this: Where one believes ¬LN, this means that for any rule M, we have to be able to recognise that circumstances might arise in which M would fail (even if we do not know the exact circumstances). In order to do so, some reasoning will be involved. Such reasoning would have to involve rules other than M; call one such rule R. But once both rules M and R are in play, who is to say that it is rule M rather than rule R which is the culprit? In coming to recognise that M might fail to be truth-preserving in some circumstances, it might be that rule R was defective and led us to an unfair opinion about M. At this point, pragmatic considerations will be brought into play to choose between the rules, including which rule is more or less recalcitrant in the light of experience. But in order to calculate these degrees of recalcitrance, one will need to do some reasoning, which will involve the use of some further rules, but then, it is again open to lay the blame at the door of the new rule, rather than the old. And so on and so forth. This falsificationist methodology collapses into regress.

McFetridge's argument shows that our practices of reasoning from suppositions commit us to a belief that some rules of inference are truth-preserving when reasoning under any supposition whatsoever, whatever may be the case. Hale (2002)'s argument was not able to show conclusively that there are some privileged rules of inference, immune from rational doubt in all contexts, although it was strongly suggested. McFetridge's argument plugs the gap.

3.4 Logic and the Web of Belief

The contrary claim, that all principles should be open to rational doubt, and perhaps revision under the right circumstances, is familiar from Quine. I turn now to some arguments against a Quinean approach to the status of logic, which show that *even the Quinean* is committed to there being some rationally indubitable logical principles.

The Quinean view encompasses a kind of epistemic holism, whereby it is not single beliefs which are the objects of confirmation or disconfirmation by observation and experience. Rather, it is one's entire

network of beliefs — the web of belief — which faces the "tribunal of experience" as a whole. Beliefs about logic and mathematics are included in this web. If there is some discrepancy between the web of belief and experiential evidence, then something in the web of belief will have to be modified. Modifications can in principle take place at any point in the web, although some areas, such as beliefs about logic and mathematics, will require exceptionally strong recalcitrant experience to force their revision. This Quinean position does not allow for the kind of phenomenon I have been arguing for: given the right kind of recalcitrant experience, *any* logical law might be up for revision and jettison, so no logical law can be immune to rational doubt or rejection.

In response to the Quinean, Shapiro (2000) contends that the process of belief-revision will involve the use of logical principles, and in particular, the process of revision of logical beliefs will involve the use of some logical principles. Of which logic? The same questions regarding possible revision will be faced by this second logic, which will require the use of logical principles. And so on and so forth. So this kind of revision can never get going properly.[16]

The thought is that the process of maintenance of the web of belief in the light of experience will sometimes involve a reasoned, considered reaction to recalcitrant experience. We must be able to recognise that an experience is indeed not compatible with extant beliefs, and work out what beliefs will have to be changed in order to accommodate the recalcitrant experience with minimal trauma to the web. This, surely, will involve the use of some logical principles, such as those governing coherence and compatibility, and those governing the use of the conditional (to be able to properly consider the consequences of different changes). But if the very activities of web-maintenance and belief-revision presuppose reliance on some logical principles, this will cause trouble when it comes to revision of beliefs in those

logical principles. What principles may one rely on when revising the very principles which underwrite the process of revision?[17]

Shapiro notes that this kind of argument is similar to one presented in Wright (1986) against the Quinean position. Hale (1999) also presents a version of the argument. It begins:

> Let θ be some theory we are putting to the test and L our underlying logic. We derive from θ, using L, various conditional statements whose antecedents describe observationally checkable initial conditions, and whose consequents specify observable predicted outcomes. Let $I{\rightarrow}P$ be any such. A series of observations E will be recalcitrant (more fully, recalcitrant with respect to θ+L) if it provides, or appears to provide, grounds to accept I but reject P. (1999: 37)

In the case where E is recalcitrant, the Quinean allows a number of revisionary moves. One might change theory θ, such that it no longer constitutes premises from which $I{\rightarrow}P$ is derivable. One might change logic L, such that it no longer yields a derivation of $I{\rightarrow}P$ from θ. Or one might change one's view of E, such that it is no longer viewed as recalcitrant. However, because the Quinean allows that all and any statements are part of the web of belief and thus should be candidates for revision, an additional option presents itself, *viz.* to reject the following statement W:

W $\theta \vdash_{L} I{\rightarrow}P$

Regress now threatens for the following reason: Standardly, in choosing an option for revision — say, between revising θ or revising L — the Quinean will bring in pragmatic considerations, comparing the options for their relative degrees of recalcitrance against already accepted beliefs and observations. However, this pragmatic comparison rests upon acceptance also of W: if W were not true, then the degree

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16. See in particular Shapiro (2000: 338).

17. See Shapiro (2000: 346).

of recalcitrance of changes to, *e.g.*, θ will come out as different. So the process of comparison of options all occurs conditional upon W. So different combinations containing acceptance and rejection of W must now be assessed for their degrees of recalcitrance. But inevitably there will be some further hypothesis underlying this exercise in comparison, analogous to statement W. Hale concludes:

> Since *all* such hypotheses are in the pragmatic melting pot along with all other statements, we have no progress — only regress. (Hale, 1999: 39)

Such arguments show that a Quinean view which excludes all statements, including logical statements, from a special status outside of the web of belief, cannot be sustained, as it will lead to vicious regress.

Shapiro highlights an additional detail of Quine's view which pulls in the same direction. Quine's thesis of the indeterminacy of meaning has it that linguistic behaviour data systematically underdetermine an interpretation or translation of a linguistic agent. In Quine's familiar example, a linguist in the field, working to develop a translation manual for the language of a tribe, is presented with a tribe member exclaiming "Gavagai!" in the presence of a rabbit. Not only is there insufficient evidence for choosing a translation from "There goes a rabbit!", "There goes an instance of rabbitiness!", "There go some undetached rabbit-parts!" and so on, but Quine contends that each of the different possible translation manuals are equally correct — there is no fact of the matter about meaning. But what about the case of logical vocabulary? Shapiro notes:

> Quine himself is ambivalent on the semantic status of the logical connectives. In later work, he suggests that if a radical translator has a native denying (or refusing to assent to) a logical truth, then we have strong evidence that we have mistranslated. The problem is that if we interpret a native as denying or refusing assent to a logical truth, then we have attributed a deep incoherence to him.

> Better to think we have made an error in translating than to attribute deep incoherence. (Shapiro, 2000: 356)

This echoes a point which I will attempt to draw out later, namely an important distinction between our attitudes towards rejection or doubt of logical truths, and those towards rejection or doubt of other purported truths *including metaphysical statements*. The "Gavagai" example seems to involve the field linguist assigning different folk-metaphysical beliefs to the tribe members. The first translation ostensibly gives us a tribe believing in medium-sized physical objects and organisms, the second a tribe believing in property-instances rather than objects, the third a tribe believing in the existence of parts but not ontologically robust wholes. We might find some of these worldviews strange, but we do not worry that we are consigning the tribe to incoherence. Our attitudes towards rejection of purported metaphysical truths is remarkably accepting and tolerant. In contrast, even Quine has noticed that our attitudes towards rejection of *logical* truths is far less sanguine. We might think that someone who is best interpreted as denying an important metaphysical truth to be gravely in error, but it seems that we can't make any good sense at all of interpreting someone as denying important logical truths.

In sum, even the Quinean must admit that there are some logical principles which lie outside the scope of revision. In addition, further remarks from Quine highlight a distinction between our attitudes to rejection or doubt of metaphysical, as opposed to logical, truths and principles.

3.5 The Minimal Principle of Contradiction

So far I have presented some arguments for the claim that there are some principles which are immune to rational doubt, but I have not presented any concrete example. One such example might be the Minimal Principle of Contradiction.

> **MPC**   Not every statement is true.

Thompson (1981), following Putnam (1978), argues that MPC is true and known *a priori* in virtue of its being a presupposition of thought and explanation.

Thompson invites us to consider a thought experiment: Imagine trying to make meaningful utterances in a situation where you have to accept every statement as true. The idea is that such a thought experiment is self-undermining. In order to even imagine such a scenario, one must be adhering to the minimal principle of contradiction by denying the truth of something, namely MPC.

> [I]n imagining the situation in question, we presuppose the very principle we are supposed to learn from the thought experiment. In order to imagine ourselves in a situation in which we reject the minimal principle of contradiction, we must take it to be true that in this situation we reject the principle and false that we accept it. But then we take for granted at the start that not every statement is true, which is just what the experience is supposed to show. This predicament is unavoidable. (Thompson, 1981: 460)

Thompson's argument here is difficult to tease out. Moreover, there are a number of *prima facie* problems. *E.g.*, imagination is not closed under logical consequence: just because I imagine myself in a situation where I reject MPC, it does not follow that I imagine that in that situation it is true that I reject MPC and false that I accept it. Moreover, it appears that some kind of assumption against true contradictions is being smuggled in. Even if in this imagined situation it is true that I reject MPC, why shouldn't it also be true that I accept MPC? We are, after all, in the business of casting doubt on MPC, so prejudice against contradictions surely isn't allowed.

I would like to offer a simpler route into highlighting the curious nature of MPC. Consider the question: What would it be to rationally doubt this statement? Well, it would be to seriously entertain, or to try to assert, something like the following:

> It might not be true that not every statement is true.[18]

In rationally considering how things might be, it will be natural to consider how things would be if things were indeed that way. So, if it were not true that not every statement is true, how would things be?

> If it were not true that not every statement is true, then it would be true that some statement is not true.

From it being true that some statement is not true, it follows that

> Not every statement is true.

In considering how things would be were MPC not to be true, it would turn out that not every statement would be true, and hence that MPC would be true after all.

This is not intended to be an argument for the *truth* of MPC. Rather, the purpose is to highlight the relationship between MPC and rational doubt. But note that, even in this short, simple argument, I have relied on some inference rules, namely those governing the quantifiers, allowing me to move from "not every statement" to "some statement".[19] This weakens the conclusion. It is not that in entertaining MPC as an object of doubt, one immediately appears committed to MPC, with no other rules of inference playing a role. The arguments of the previous sections were intended to show at the very least that one needs to rely on *some* rules in any case of reasoning. If MPC is put up for doubt,

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18. The 'might' here should be read as epistemic possibility. What is up for discussion is *doubt*, not the thought that MPC is contingent.

19. Thank you to an anonymous referee for bringing this feature of the argument to my attention. Perhaps this is just part of the meaning of the words 'every' and 'some', but that would still imply an inference rule lurking somewhere. I've already discussed whether we need to connect these rules to our understanding of logical words above, in section 3.2.

then if we are to rationally consider this, we will need to trust some rule or other. In this case, it was most natural to rely on the quantifier rules. (At least they are different to the principle under question: Thompson's thought experiment appeared to smuggle in something like a principle of non-contradiction.) The alternative, where no rules are brought to bear at all, would count no longer as rational doubt, but as mere unreflective foot-stamping.

What is it to doubt something? At the very least it will involve entertaining the thought that it might not be true.[20] In entertaining that the object of doubt might not be true, I have argued that rational reflection on this leads quickly to one's entertaining MPC. As this exercise is one of *rational* doubt, some rules of inference are relied upon. Allowing for this, it would seem that an attempt to rationally doubt MPC brings in the thought that MPC might be true, hence undermining that doubt. Thus we have evidence of a logical principle which is immune to rational doubt.

4 Alternative Explanations

I have provided a number of reasons to think that there are logical principles which are immune to rational doubt.[21] The next step is to give an explanation of this phenomenon. I will first consider some candidate explanations which fail.

First, I will consider MacFarlane's interpretation of Frege on logical laws. Frege primarily takes the laws of logic to be the laws of truth. These are descriptive laws, general truths, where 'general' means that they apply to everything. However, he argues that, in addition to these descriptive general truths, arising out of the laws of truth are prescriptive laws of thought. Because the laws of truth are completely general, in the sense that they are about absolutely everything, they

accordingly give rise to laws for thinking about anything, about no particular subject matter; hence they are laws of thought as such.[22]

Consider cases of laws less general than logical laws, such as the laws of physics. The laws of physics describe regularities of the physical world: they are true general statements about physical objects, properties and processes. Arising from these are norms or standards for counting as thinking about physical objects. Suppose I believe that the force exerted on an object is equal to its mass plus its acceleration. In order for my belief to really be about physical objects, it must be appropriate to evaluate it as *wrong*, given the laws of physics. It may well be that my belief is neither right nor wrong in light of the laws of physics, because I am thinking about some other kind of thing — say, alien schmysical objects.[23]

> Insofar as one's activity is to count as making judgments about the physical world at all, it must be assessable for correctness in light of the laws of physics. In this sense, the laws of physics provide *constitutive norms* for the activity of thinking about the physical world. (MacFarlane, 2002: 36–37)

If one considers thought about any subject matter whatsoever, not restricted to a particular domain such as *physical objects*, one will encounter completely general standards for thought. Frege took the laws of logic to be the most general truths there are, about absolutely everything. If the laws of logic are general truths about everything, then,

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20. Even if more is involved, the thought is at least entertained.

21. There are further avenues that could be pursued here, which I will skip for reasons of space. For example, an interesting link might be drawn here to Wittgenstein's hinge propositions (see Wittgenstein [1969]).

22. See Textor (2011, chapter 1) for more on Frege on arithmetic, logic and logical laws.

23. This kind of view does not require that one know what the laws of physics actually are. It would be inconsistent for me to believe that L is a law of physics and also to believe something about the behaviour of a physical object which contradicts L. But this would be straight logical inconsistency. The point is that, in believing something about a physical object which goes against what the laws of physics actually are, I should count as doing something wrong, whether I know it or not, if what I am doing is to count objectively as thought about physical objects. If what I am doing isn't counted as (right or) wrong, then I am doing something else, *e.g.*, thinking about alien objects.

following the same line of thought as above, if I want to count as thinking about anything, what I am doing must count as right or wrong in light of those laws. But this time, there is no alternative realm of which I might be thinking (as with the schmysical objects). If I am not thinking about something out of everything, there is nothing left for my thought to be about.

> While physical laws provide constitutive norms for thought *about the physical world*, logical laws provide constitutive norms for thought *as such*. (MacFarlane, 2002: 37)

In order to count as thinking *at all*, what I am doing must count as right or wrong in light of the most general laws which cover every possible domain of thought. If one's activity is not evaluable in light of these norms, then it cannot be about anything; hence one must be doing something other than thinking. The explanation of the phenomenon is thus that we cannot rationally doubt the very normative standards evaluability in light of which is constitutive of thought — including rational doubt — at all. The explanation is that the laws of logic are constitutive norms for thought.

I am sympathetic to the view that laws of logic are constitutive norms for thought, but I think a different rationale to that offered by (MacFarlane's) Frege is to be preferred. A substantial worry about this strategy is that it cannot draw a line between the laws of logic and other general truths which are about "everything". First, in what sense are the laws of logic about "everything"?[24] Take the generality of the laws of arithmetic.

> The truths of arithmetic govern all that is numerable. This is the widest domain of all; for to it belongs not only the

actual, not only the intuitable, but everything thinkable. (Frege, 1884, section 14)

According to Frege, the laws of arithmetic govern all that is thinkable. Do the laws of arithmetic quantify over everything? Presumably not. We normally think of laws of arithmetic as quantifying over *numbers* (or providing schemata with places for numbers). But if the laws of arithmetic quantify over or contain places for *numbers*, and govern the behaviour of numbers and arithmetical functions, in what sense can they be said to govern *everything thinkable*? In the following sense: everything which falls under a (non-vague) concept is numerable or countable.

> The only barrier to countability is to be found in the perfection of concepts. Bald people for example cannot be counted as long as the concept of baldness is not defined so precisely that for any individual there can be no doubt whether it falls under it or not. Thus the domain of the countable is as wide as the domain of conceptual thought. (Frege, 1980: 100)[25]

(Frege ultimately argues that vague predicates do not correspond to any concept, so the restriction to falling under a non-vague concept is really no restriction at all.) We can think only about things which fall under concepts,[26] so everything which we can think about is countable.[27]

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24. To put forward a careful interpretation of Frege here would be too great a task for present purposes. If what I write is not a faithful rendering of what Frege intended, at least it is a *Fregean* view under consideration. See MacFarlane (2002) and Textor (2011) for more detailed interpretations.

25. As cited in Textor (2011: 16).

26. The simplest explanation of this is that everything falls under a concept, understood in the Fregean sense, *i.e.*, something like a property: to think otherwise would be to commit oneself to the existence of bare particulars.

27. That a domain is 'countable' is often understood as meaning that the elements of the domain can be mapped one-one to the natural numbers. But Frege doesn't mean to claim that the domain of all things is countable. (That would be false. For one, not every point on a line can be counted in this way, let alone everything there is.) Rather, Frege's claim that a given domain is 'countable' is to be understood as the claim that the domain is 'numerable',

One can understand Fregean generality of the laws of logic in a similar way. A law such as

$$\forall p \forall q (p \supset (q \supset p))$$

ostensibly quantifies over propositions. A schematic presentation of the law

$$A \supset (B \supset A)$$

contains letters which act as place-holders for sentences or propositions. So, aren't the laws of logic a specialized science about propositions or sentences? No. Propositions (sentences) can be about anything, just as numbers can count anything. So the laws of logic govern everything thinkable, in virtue of governing propositions which can be about anything thinkable.

However, there are other laws (general truths) which are "about everything" and which are *not* rationally indubitable, or immune to rational rejection, or otherwise binding on our thought. If this explanation works for logical laws, then any other laws which constitute general truths about everything should also be rationally indubitable, and yet they are not. One can already see that the laws of arithmetic, on this view, should be binding for thought in this way. Are they? Maybe, maybe not. More worrying is the possibility of general truths which directly quantify over everything, or which are "about everything" directly, without any intermediary numbers or propositions.

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i.e., it has a (cardinal) number, which might be a finite or an infinite number. Frege writes: "The concept 'syllables in the word three' picks out the word as a whole, and as indivisible in the sense that no part of it falls any longer under that same concept. Not all concepts possess this quality. We can, for example, divide up something falling under the concept 'red' into parts in a variety of ways, without the parts thereby ceasing to fall under the same concept 'red'. To a concept of this kind *no finite number* will belong" (Frege, 1884, section 54, my emphasis). There may be "uncountably many" entities which fall under a concept such as "red", meaning that the red things cannot be mapped one-one to the natural numbers, but such a concept may still have a number, albeit an infinite number.

Consider cases of purported "laws of metaphysics". *E.g.*, Frege may have endorsed something like the following statement:

> Everything is either an object or a function.

There are other general statements that some philosophers have endorsed:

> Everything is a thinking substance.

> Everything is perceptible.

> Everything is a particular.

Surely these are intended to be about *everything*? Moreover, they are more obviously about everything than the laws of logic and arithmetic, given that they quantify directly over all things, not over an intermediary which in turn applies to all things. But, and here is the rub, surely we do not want to claim that metaphysical truths are immune from rational doubt? The very bread and butter of a discipline such as metaphysics is to continually question these kinds of statements, to consider them, to offer arguments and justifications in favour of (or against) them.

Recall, the brief was to provide an explanation of a particular phenomenon, namely the rational indubitability of some logical principles. In offering the above explanation, one not only accounts for the logical laws, but gets any similarly general laws about everything for free, be they laws of arithmetic, or metaphysical truths, and so on. The explanation fails in overstepping the brief, and ushering in new commitments to the rational indubitability of principles that we would rather keep open to debate.

Another alternative explanation might run as follows: Isn't it because we want our thought to accord with how things are absolutely necessarily? If thought aims at truth, then thought will aim at being correct about how things are. In particular, thought will always count

as correct or incorrect according to how things are absolutely necessarily. Perhaps this explains why thinkers are always evaluable in light of certain principles — because thought aims at truth, and the relevant principles are always true, no matter what.

However, this fails as an adequate explanation of the phenomenon. An attempt to raise doubts concerning, *e.g.*, *modus ponens* does not break down simply because it is always valid no matter what (or because a propositional rendering of it is always true); rather, it is because it is an integral part of the very apparatus we use to raise doubts about logical principles. Simply being true or valid no matter what doesn't seem to imply that a proposition or rule is part of this minimal logical apparatus (although an implication may turn out to run in the other direction). One can raise a similar objection here to that directed towards the Fregean view: it explains too much. Some philosophers take metaphysical necessity to be absolute necessity.[28] If they are right, and if absolute necessities are supposed to be rationally indubitable, then metaphysical necessities will be counted as rationally indubitable. But it is not true that (purported) metaphysical necessities — such as that Socrates is a human, and not a boiled egg; or that Elizabeth II has George VI for a father; or that water is H_2O — are immune to rational doubt. So one cannot claim both that metaphysical necessity is absolute, and that the phenomenon of rationally indubitable principles can be explained in terms of striving to think in accordance with how things are absolutely necessarily.

Note that these two failed explanations start with the idea that the laws of logic have a particular and primary relation to *truth*: they are the most general truths, or they are particularly robustly (absolutely necessarily) true. But, *prima facie*, there is no principled reason to expect a particular relation to truth to generate a peculiarly binding relation to thought. It seems that taking this kind of approach is never going to generate a satisfactory explanation of rational indubitability. Rather than taking an outward-looking approach to logic, perhaps we

28. See Hale (1999); Shalkowski (2004).

should consider first how it needs to be related to thought to account for its bindingness, and worry about truth later.

5 Constitutive Norms for Thought

5.1 A Kantian Sketch

In essence, my proposal is that Frege was right but for the wrong reasons. The laws of logic are constitutive norms of thought. There are some normative laws, evaluability in light of which is constitutive of thought. That's just what thought *is*: a mental activity which is subject to rules of a peculiar kind. These are the "laws of thought". And the kind of principles that arise from considering the predicament of being unable to step away from these norms look to be familiar and basic logical principles. So we can take the laws of logic (or at least the most basic laws of logic) to be the laws of thought: constitutive norms for thought as such. This view provides us with the best explanation of a particular phenomenon. If we accept that there are rationally indubitable principles, this means that it is impossible for us to step out of our thought being evaluable in light of these principles. A good explanation of this is that for one's mental activity to be thinking *just is* for it to be evaluable in light of certain norms.

The primary aim of this paper, as stated at the outset, was to formulate an argument with the conclusion that laws of logic are laws of thought. This has been done. Nevertheless, one can't help wanting a bit more detail on how the view should be developed. The Fregean account could expand upon the view in terms of the relationship between descriptive and prescriptive general laws, but I have argued that the account fails. There is no space to give a fully developed account here, but I will briefly sketch an option which I take to be promising, and which coheres with the historical roots of the view.

I will start with the assumption that thought is a normative phenomenon. Take an example of representational thought, *e.g.*, thinking that *a is F*. It makes sense to describe how this representation succeeds in being "about" *a* in terms of norms and correctness: if the thought

isn't correct or incorrect depending upon how things are with *a*, then it doesn't make sense to think of it as being about *a*.

Next, throughout Kant's work he makes a distinction between *mere thought* and *cognition*. Very briefly, cognitions are objective representations which succeed in being about the world, through adhering to certain constraints on possible experience. Those constraints are (synthetic *a priori*) principles arising from the categories, *a priori* concepts the possession and deployment of which are a requirement for us to have experience and knowledge of an objective world. By contrast, mere thoughts do not achieve objectivity: they are not properly about the world. Thoughts are still held to certain structural, *general logical* standards, but mere thoughts fall short of the constraints which would afford them objectivity. For example, according to Kant, the thought that *there is a figure enclosed by two straight lines* conforms to general logical laws, in particular it does not contain any contradiction, but it is incompatible with the relevant synthetic *a priori* principles.[29] Such a thought therefore could have no instance in the empirical world, and so it falls short of objectivity.

> To **cognize** an object, it is required that I be able to prove its possibility (whether by the testimony of experience from its actuality or *a priori* through reason). But I can **think** whatever I like, as long as I do not contradict myself, *i.e.*, as long as my concept is a possible thought. (Kant, 1998, Bxxvi, footnote, emphasis in the original)

Another example (which does not rely on Kant's precarious views about geometry) might be thoughts about causally isolated objects. Such thoughts would be in violation of principles of cause and effect which Kant took to be necessary conditions on the possibility of cognition of the empirical world. Nevertheless, there doesn't seem to be any *logical* problem, or any difficulty with making sense of such a thought.

29. In this case, it is incompatible with the Euclidean laws of geometry, which Kant thought were necessary conditions of our experience of things in space.

My suggestion is this: In the case of mere thought, we cannot make sense of it as a normative phenomenon in terms of norms arising from how things are with what is represented (what the thought is about), because mere thoughts do not succeed in representing any object (they are not *about* any thing). We are left only with bare norms for how thoughts should be put together and related to one another, *i.e.*, logical principles. So general logical principles are required to provide norms to constitute thought as a normative phenomenon. Thought in the broadest sense is constituted by evaluability in light of these general logical principles.

This line of thought needs to be explored more thoroughly elsewhere. Apart from fleshing out the Kantian suggestion, the starting point of taking thought to be normative would also need more attention. (I suggest below that thought understood as an *activity*, as something we *do*, plausibly requires rules for its practice, which could be a starting point here.) However, the suggestion to be kept in mind is that, allowing for thoughts which fall short of representing the objective world, and taking a general view of thought as a normative phenomenon, may give us the tools to give a more satisfying account of *why* logical laws are constitutive norms for thought. My aim in the present paper has been to give an argument for thinking that they *are*.

There is also an interesting contrast to be made between the Kantian approach outlined and the Fregean explanation. The Fregean argued that the laws of logic were about *everything*, so any thought, in order to be about *anything*, had to conform to logic. By contrast, the Kantian approach leaves room for thoughts that are not properly objective, that are indeed not about anything. If the Kantian is in general right to defend a distinction between mere thought and cognition, then the Fregean can give no account of why mere thought should still be subject to the laws of logic. If such thoughts are not about anything, then they can no longer be held accountable to laws which are about everything.

Furthermore, this connects to Kant and Frege's differing views on *generality*.

For Kant, the generality of logical laws consists in their abstraction from the content of judgments, while for Frege, the generality of logical laws consists in their unrestricted quantification over all objects and all concepts. (MacFarlane, 2002: 32)

Kant distinguished between two kinds of logic: general logic and transcendental logic (Kant, 1998, A50–57/B74–82). Transcendental logic comprises rules for the special employment of the understanding to thoughts and judgments about objects of possible experience, *i.e.*, objects that conform to the conditions under which the human mind is able to have objective representational thoughts and empirical experiences. In short, transcendental logic gives us rules for cognition. General logic, in contrast, abstracts from all content of judgment, and hence comprises rules for the employment of the understanding *tout court*, with no restriction as to subject matter. General logic gives us rules for thought as such. Recall, the main problem for the Fregean view was that the laws of logic are not the only truths which are about everything. But perhaps this is simply the wrong way to think of the generality of logic. The Kantian account of generality distinguishes logical laws as abstracting away from all content, and therefore avoids this kind of problem.

5.2 Thoughts and Non-Thoughts

Are there any mental activities or states which do not appear to be subject to the same kinds of norms? If so, such activities or states would thereby be classified as non-thoughts. A test of the present proposal would thus be the plausibility of these classifications. Three potential examples come to mind.

First, consider dreaming. We do not demand logical coherence from our dreams, but dreaming is still arguably some kind of mental state or activity. Moreover, classifying dreaming as a recognisable mental phenomenon that isn't thinking as such seems plausible. For one, thinking seems to be something over which we can typically exert

some kind of active control, whereas dreams are something that we can't control; they just "happen to us". I might not actively choose all of my thoughts — a thought might "pop into my head" for various reasons (*e.g.*, I see a tree in front of me and thereby think, "There is a tree") — but I at least have enough control over my thoughts to reflect upon them and, where necessary, revise them (*e.g.*, if I learn that there is only a hologram of a tree). Insofar as I can exert some control over my thoughts, it seems reasonable that there might be standards according to which I may do so. By contrast, it seems unfair to hold a mental phenomenon over which we have little or no control to normative standards. Indeed, the passive nature of our dreaming may provide an explanation of why we don't typically censure illogical dreams as being somehow "wrong" — weird, yes, but not incorrect.[30]

To properly address the range of philosophical and psychological work on the nature of dreaming would be beyond the scope of this paper, but the idea that dreams are not subject to logical standards is supported by some of the literature.

For example, Hobson (1999) claims that events within dreams are not subject to reasons, and that dreamers are in a non-rational state, although he shies away from allowing that one could dream "an evident contradiction", on pain of disrupting the flow of the dream-narrative: "In a word, the limits of dream content are the same as the limits of dream narratability" (Hobson, 1999: 410). However, if Graham Priest can offer us a plausible waking narrative containing explicit contradictions,[31] I see no reason why a dream narrative couldn't accommodate something similar. Regardless of what it is possible to

30. There is indeed the phenomenon known as "lucid dreaming", whereby the dreamer can exert control over the course of dream events. But I take it that this is rare, and that typically dreams are outside of our control, just as typically thoughts are within our control.

31. For example: "I walk out of the room; for an instant, I am symmetrically poised, one foot in, one foot out, my center of gravity lying on the vertical plane containing the center of gravity of the door. Am I in or not in the room? By symmetry, I am neither in rather than not in, nor not in rather than in …. But wait a minute. If I am neither in nor not in, then I am not (in) and not (not in). But the law of double negation, I am both in and not in.

dream, the point is that, if we do dream explicit contradictions, they don't count as "incorrect". Similarly, Macdonald (1953) describes dreams as "incorrigible": "Dreams have no standards. Or, rather, it is senseless to apply the notion of standards to dreams" (Macdonald 1953: 213).

Note that the claim that dreams are alogical does not rule out views according to which any experience or content that can be conceptually articulated requires the possession of certain inferential abilities — if I have a dream about a dragon made of marshmallows, inferential abilities may be implicated in my possession of the concepts *dragon*, *marshmallow*, *constitution*, etc. Nevertheless, the way these concepts are put together is not subject to logical laws — it may make perfect sense in my dream that the dragon is both wholly composed of marshmallows and wholly composed of dragon flesh, where these are different, although I will be very confused on waking.[32]

A second potential example is "alief". Gendler (2008b) describes alief as "a mental state that is … *a*ssociative, *a*utomatic and *a*rational" (2008b: 557).[33] Alief is the mental state which explains someone's "reluctance to eat fudge shaped to look like dog feces, to drink lemonade served in a sterilized bedpan, to throw darts at a picture of a loved one — even when she explicitly acknowledges that the behaviors are harmless" (Gendler, 2008b: 555–556). In other words, alief is what accounts for the "irrational" parts of our behaviour (*e.g.*, recoiling from drinking the lemonade) that can't be accounted for by our beliefs (*e.g.*, that the bed pan is perfectly clean) or our desires (*e.g.*, that we quite like lemonade). The important features of alief for present purposes

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(Even without it, I am both not in and not not in, which is still a contradiction.)" (Priest, 1998b: 415)

32. Note that the proposition that *the dragon is wholly composed of marshmallows and wholly composed of something other than marshmallows*, although contradictory, could still count as a thought if it counted as wrong, *i.e.*, if it were properly evaluable in light of the laws of logic. The point is that in a dream it doesn't matter, it doesn't have to count as wrong, and so it doesn't count as a thought.

33. See also Gendler (2008a).

are that they are professed to be arational and automatic. They are arational, not directly subject to rational norms,[34] rather than *ir*rational, in violation of rational norms: "Though aliefs may be useful or detrimental, laudable or contemptible, they are neither rational nor irrational" (Gendler, 2008b: 557). They are also automatic; they are not something we form through conscious thought and deliberation, but are rather formed through associations and habits: "Though a subject may be consciously aware of her aliefs, aliefs operate without the intervention of conscious thought" (Gendler, 2008b: 557). So we have a mental state that is, arguably, not subject to logical laws, and that is plausibly not a kind of thinking but rather an habituated reaction (automatic, not active), which may have some kind of conceptual content (*e.g.*, BEDPAN, DIRTY, AVOID),[35] but which is not something we *do*, under our direct control, as in thinking. Whether or not there is a distinctive state of alief, and if there is, what its precise nature and role are, are disputed matters. But if there is a genuine mental phenomenon that Gendler has highlighted — regardless of the correct label for it — with these key features, then we have another plausible candidate for a mental state which is both not a kind of thinking, and also not subject to logical laws.

A more troublesome case might be the idea of a stream of consciousness, composed of "snatches of thought". Thus far I have employed a working notion of thought as minimally entertaining propositions. A thought can be this minimal, although it can be more. However, a stream of consciousness may be made up of "thoughts" that do not even involve something as well-formed as a proposition, *e.g.*, a sub-propositional "fragment".

In response, one can claim that the scope of my account covers only thoughts which fulfil the minimal condition of entertaining of a

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34. Aliefs could be indirectly subject to rational norms. *E.g.*, if one has inconsistent beliefs and aliefs, of which one is aware, one might feel some obligation to somehow bring one's aliefs into line with one's beliefs.

35. I have taken this way of presenting the content of alief from Mandelbaum (2013).

proposition. There may be other interesting mental activities and practices in the vicinity, but these are not taken into account here. *Propositional* thought is still something we engage in. As such, an account of this in terms of constitutive-norms, and an account of logical necessity as having its source in these constitutive norms, still has a place. To accommodate the worry by making the notion of thought in play even more minimal would be a step too far. *E.g.*, it would make no sense to develop an account of logical laws out of an account of an activity which doesn't obviously have a relation to logic. If thought were taken to include streams of consciousness, then the most minimal cases of thought arguably would not be logically evaluable.

6 Objections and Replies

6.1 Truth

Statements of laws of logic are typically taken to be both true and logically necessary. Logical necessity is typically taken to imply truth, *i.e.*,

$$\Box_L p \supset p$$

This is the T-axiom familiar from modal logic. One would expect any account of the nature of logical laws to be able to accommodate their truth, and also the validity of T for logical necessity (or to have a very good reason why it should be rejected). The alternative explanations will be able to easily accommodate these features. Consider Frege's laws of truth: above all, these are themselves *truths*. *How things are absolutely necessarily* is also understood to be *how things are*. By contrast, it is not clear how the proposed view, that laws of logic are constitutive-normative laws of thought, can handle these relations to truth. Just because a principle is an inescapable standard of correctness for our thought, this does not immediately imply that it is true, nor that it entails truths. But I take it that giving up the truth of logical laws, and the implication of truth by logical necessity, would be an unacceptable cost.

It is worth emphasising how this issue and the phenomenon I have been discussing pull in two directions. On the one hand, we want to explain why logical laws are so intimately bound up with thought and our practices of reasoning and justification. On the other hand, we want to maintain that basic principles and statements arising from logic are, above all, *true*. A view which takes laws of logic to be constitutive-normative laws of thought has a ready answer to the first question, but has no immediate answer to the second. Likewise, a view which takes laws of logic to be connected to something external to thought may have it easier with the second question, but will struggle with the first.

A natural move to make, given the Kantian background of this view of logic, is the move from acknowledging that we can't help but experience the world a certain way, to concluding that those features are thereby genuine features of the world we experience. Recall, in order for a thought to be objectively valid (to be a cognition), it must conform to conditions on possible experience (as well as being subject to logical standards). The transcendental twist of Kant's philosophy is that these objectivity conditions are taken to correspond to genuine features in the world, and hence to correspond to truths. *E.g.*, if a condition of a thought having an object to be about is that every object be spatiotemporal, then it is thereby *true* that every object is spatiotemporal.

To substantially defend a Kantian transcendental move here would go beyond the present paper. But here is a brief sketch of the idea: The present proposal is that there are norms evaluability in light of which is constitutive of thought. This means that any *correct thought* about *anything* will conform to those logical laws.[36] It just won't be possible to have, *e.g.*, a correct representation of something contradictory.[37] As a consequence of this, the only things we can think about correctly are things which conform to the laws of thought. There might be different

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36. Whether or not one takes there to be additional constraints on objective thought, such as Kant's conditions on cognition.

37. Assuming that the law of non-contradiction is a law of the one true logic.

explanations of this. One might run a transcendental idealist, constructivist story, and claim that certain features of the world are injected into the world through our cognitive engagement with it; in constructing a world of experience in accordance with the laws of thought and cognition, we thereby make it the case that the world conforms to the laws of thought (and cognition). Call this the cookie-cutter view of the laws of thought. One might prefer a more austere account, according to which things are as they are independently of our capacity to think of and experience them, but our capacities determine which parts of the world we are able to think of and experience. The things we can think of correctly are real, and genuinely conform to the laws of thought, although there might be other things lurking beyond our ken. Call this the shape-sorter view of the laws of thought. In either case, the resulting objects of thought genuinely do conform to the laws of thought — the laws of thought are true of them — whether those objects be cookies or shapes. At least in the domain of the thinkable, the laws of logic turn out to be true. These kinds of Kantian views thus demonstrate the start of a line of thought which can be used to argue that logical principles, evaluability in light of which is constitutive of thought, will describe genuine features of the world, and therefore be true.[38]

6.2 Opting Out

Another potential problem arises by considering a similar debate about moral normativity. In brief, two issues are under consideration: (a) to what moral standards are we subject, and (b) what makes moral standards binding for us — why *ought* we to conform? One proposal is that a constitutive theory can give us the answers. The idea is that the moral standard that one ought to φ is binding for an agent because that one ought to φ arises out of constitutive features of what it is to be an agent, or because φ-ing is constitutive of being an agent. Issue (a) can be addressed by learning more about what is constitutive of

agency, and issue (b) can be addressed by noting the constitutive tie. The moral norms that bind us do so because they are part of *what it is* to be an agent.[39]

> The intuitive idea can be put, I think, rather simply: In order to know what it takes for a car to be a good car, we need to understand what cars are, what their constitutive functions are, and so on. A good car is just a car that is good *as a car*, good, that is, in measuring up to the standards a commitment to which is built into the very classification of an object as a car. Analogously, then, perhaps in order to know which actions are good (or right, or reason supported, or rational, or whatever), all we need is a better understanding of what actions are, or perhaps of what it is to be an agent, someone who performs actions. Perhaps the normative standards relevant for actions will fall out of an understanding of what is constitutive of action just as the normative standards relevant for cars fall out of an understanding of what is constitutive of cars. (Enoch, 2006: 170)

The analogy with my proposed view of logical laws is striking. My question (b) is: Why are logical laws binding for our thought? The proposed answer is: Because that we ought to think that way is part of *what it is* to think. My question (a) is: What are the most fundamental laws of logic? The proposed answer is: Those which we cannot rationally doubt, due to their being in some sense constitutive of thought.

So what is the problem with this kind of view? At the heart of the moral view is the idea that we want to explain why it is *good* to do some things, such that we ought to do them, and such that it is not an arbitrary matter which things we ought to do. However, just because we find out that performing some actions is in some sense constitutive of being an agent, why does this take away the worry? Why shouldn't we

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38. See also Gardner (1999) and Allison (2004) for more considered defences of the transcendental move.

39. Examples of constitutive views include Korsgaard (1996, 2009) and Rosati (2003).

simply then worry that the constitution of our agency is just as arbitrary as our non-essential desires and actions? (See Enoch, 2006: 178.)

A variant of the challenge is to ask: If this is what is constitutive of agency, why should one be an agent? In response to Korsgaard's view where self-constitution is constitutive of agency, Enoch asks why the "agent" cannot simply respond:

> "… Perhaps I cannot be classified as an agent without aim-
> ing to constitute myself. But why should I be an agent?
> Perhaps I can't act without aiming at self-constitution, but
> why should I act? If your reasoning works, this just shows
> that I don't care about agency and action. I am perfectly
> happy being a shmagent — a nonagent who is very simi-
> lar to agents but who lacks the aim (constitutive of agency
> but not of shmagency) of self-constitution. I am perfectly
> happy performing shmactions — nonaction events that
> are very similar to actions but that lack the aim (constitu-
> tive of actions but not of shmactions) of self-constitution."
> (Enoch, 2006: 179)

Not only do these views appear to fail in rendering moral norms non-arbitrary, but it seems that we are now able to opt out of the norms simply by saying we are not agents, but rather something similar which lacks the relevant constitutive nature.

The threat to my proposed view is likewise twofold. First, just as we want our moral norms to guide us to the good, so we want our logical laws to guide us to the truth.[40] However, just as being constitutive of agency doesn't adequately explain how moral norms can be non-arbi-trary and aim at the good, so being constitutive of thinking does not adequately explain how normative logical laws can be non-arbitrary and aim at the truth. Not only is there the simple problem sketched above that if we understand logical laws in a *normative* way we can-not expect the resulting logical necessities to imply truth, but there

40. We want them to be true and/or truth-preserving.

is also the worry that the *constitutive* element of the view is equally undermining. Second, just as we require a reason to be an agent rather than a schmagent, so it seems we need to explain why we should be thinkers — subject to evaluation in light of the laws of logic — rather than schminkers, non-thinkers who are similar to thinkers but lack the constitutive feature of being evaluable in light of logical laws.

How should we address the charge that we can opt out of being thinkers? What reason have we to be thinkers rather than schminkers? There are two issues here: (1) Is it genuinely possible for us to opt out of thinking in this way, and (2) if so, what reason do we have for not thus opting out?[41]

A simple answer to (1) is to point back to the arguments for there being rationally indubitable logical principles at all. Surely, if these ar-guments are successful in showing anything, they show that we are unable to shed these principles as standards for any rational mental activity in which we engage. So, it looks like we *can't* in fact choose to be schminkers, understood as non-thinkers who are very similar to thinkers except for not being evaluable in light of logical laws. Even so, this assumes that we have a reason to engage in *rational* mental activ-ity: I have not been concerned with the kind of doubt which refuses to "see reason", which is just stubborn foot-stamping.

In response to (2) then, we cannot give up evaluability in light of logical laws, and hence choose schminking over thinking, on pain of losing out on too much. Under such conditions, schminking would hardly be similar to thinking insofar as it would be radically irrational. This is brought out in Hanna's response to a radical rejection of logic, which he calls "white-queenism".

> By the notion of white-queenism, then, I mean the radical
> sceptical attempt sincerely and self-consciously to reject

41. Enoch points out that needing a reason to be an agent, rather than a schma-gent, undermines a naturalist project of reducing norms for action down to constitutive facts about agents. My project does not include such a reductive claim — it bottoms out in a certain kind of norm for thought — so I am not go-ing to address this worry for the naturalist.

logic *completely*. I will consider two versions of white-queenism: (1) classical or Cartesian white-queenism, and (2) postmodern or Nietzschean white-queenism. (Hanna, 2006: 224)

More interesting is the second kind of white-queenism. Hanna likens the view to Nietzschean scepticism about morality. This sceptic does not simply claim that things we thought were good are in fact evil, or that evil things are in fact good. Rather, this sceptic opts out of morality altogether: there is no good and evil. (Note the similarity here to opting out of being an agent altogether.)

> The Carnapian-Nietzschean or neo-Nietzschean skeptic becomes a logic skeptic not by explicitly doubting logic, but instead by simply *opting out* of the social construct that constitutes the will to truth: that is, by deciding to liberate herself from logic, and by undertaking to live a form of human life that expresses a total lack of concern for logic. (Hanna, 2006: 227)

I have argued that being subject to some logical principles is inescapable for human thought, but these arguments all used reasoning in some way or another. Why couldn't we just side-step the issue completely? Rather than arguing one way or the other about whether certain logical principles are rationally indubitable or similar, one might set it all to one side and determine to go on subject to evaluation by no logical principles whatsoever.

Hanna's response is to try to imagine "a community of fully logic-liberated people". His conclusion is that, even if this rejection of logic is possible, it would result in giving up the ability to have beliefs, to give reasons for action, to act on desires and so on.

> Inconsistency and fallacy would be endemic, entrenched among them. Neither truth nor truthfulness would mean anything to them, or untruth or untruthfulness for that

matter. They could not have beliefs, but instead only un-reflective attitudes. They could not give reasons for anything, hence could not justify anything, hence would be without cognitive or practical norms of any kind. Without cognitive or practical norms, their emotional and volitional states would be without internal constraint or structure and utterly wanton, without any reasons for caring one way or the other about their direct or "first-order" desires or preferences. (2006: 229)

This seems right. Judgment, inference, reasoning, giving reasons for beliefs and actions, acting on the basis of beliefs and desires, an interest in truth, and much more besides require some logical standards of correctness. Perhaps one can indeed reject logic wholesale, but all the rest would go with it.

Moreover, I have been understanding thought as minimally requiring entertaining of a proposition. It can be argued that the ability even to entertain a proposition involves these kinds of abilities. Different broad lines of thought might be used to come to this conclusion. Some thinkers, including Kant himself, have argued that grasp of concepts and the propositions they go to form requires some inferential abilities. *E.g.*, Baldwin (2002) and Brandom (1998, 2008) offer arguments for the view that concept acquisition and deployment involve inferential and modalizing abilities. Alternatively, one might endorse a theory of meaning in terms of the truth-conditions of sentences. A community which rejected any interest in a notion of truth would be unable to understand propositions the meaning of which was constituted by the conditions under which they are true. So the logical nihilist would be taken to be rejecting even the most minimal level of thought — entertaining of a propositional content — from many established philosophical standpoints.

In short, we should be thinkers, on pain of giving up too much.

6.3 Different Logics

There are many well-established logical systems which differ on key principles and definitions, and on what counts as a deductively valid argument. An obvious challenge to my proposed view is to point out that there are many different logics on the market, all seemingly legitimate, which agree on hardly any logical principles at all. Doesn't the conclusion that some basic laws of logic are rationally indubitable fly in the face of actual logical practice?

Even worse, I have argued that the best explanation of this phenomenon is that the laws of logic are constitutive-normative laws of thought: evaluability in light of these basic logical laws is just what it is to think. But this threatens to clash with the multiplicity of logics. Do intuitionist and classical logicians have fundamentally different laws of thought, such that the intuitionist is thinking$_I$ when the classicist is thinking$_C$? If Graham Priest converts me to think that dialetheic logic is the One True Logic, do I *change* the constitutive-normative laws of my thought, and hence engage in a different kind of mental activity, say thought$_D$, to what I was doing before? Presumably not. In which case, a story needs to be told about how an account of logic in terms of constitutive-normative laws of thought can accommodate the apparent plurality of different logics.

One option would be to restrict the proposed account to basic, core logical principles. Different logics would then share a core of rationally indubitable logical principles, but may differ on less fundamental logical principles. However, there are very few basic principles, if any, shared by all logical systems. Moreover, what should we then say about the non-core principles? Are they logically necessary? Surely we want to say "yes". But then they must either be rationally indubitable — of the most basic logical principles — or follow logically from the most basic logical principles. We already know the non-core principles are not basic, so they must follow from the basic principles. But then there is going to be a unique set of (non-basic) logical principles logically determined by the basic principles. If we are to account for non-basic principles being genuinely logically necessary, we cannot

sustain a view whereby there are several genuine logics sharing a core set of logical principles but differing in their non-basic principles.

We must therefore bite the bullet and accept that there is one privileged logic. Exactly which logic will turn out to be the One True Logic will depend upon further work, to discover rationally indubitable principles and thereby to discover what all the basic logical principles are. That is a task for another time. This may be an unwelcome conclusion for advocates of the logical systems which will ultimately be rejected, or those who wish to be egalitarian about logics. However, there are various ways to sweeten the pill. One possibility to is draw a distinction between a plurality of logics, which are formal mathematical systems worthy of study, and a single logic which tells us the logical rules for the reasoning of rational minds. Mathematical logical systems may have many interesting properties and applications, but given that the very idea of logic has come out of the study of reasoning and valid forms thereof, we might retain the idea that the study of logic and logical necessity should maintain a link to a logical system as a system of reasoning. Systems falling short may be mathematically interesting, but are not relevant for the purposes of philosophical logic.

Another option might be to reintroduce considerations to do with the meaning and understanding of logical constants. *E.g.*, consider a logic which rejects *modus ponens*, but which claims to still contain a conditional. I think it is open to argue that, if a logical connective doesn't behave so as to validate at least simple instances of *modus ponens*, then it doesn't count as a conditional. After all, what does it even mean to assert *that if p, then q*, if this doesn't mean that whenever you've got p, you've also got q? If your conditional is more complex than this, such that *modus ponens* is not sufficient for conditional-elimination, at least it is necessary. However, if a logic claimed to contain a conditional which did not conform to *modus ponens* at all, then rather than say this is not a "proper logic", one could say that the logic is misdescribed: it contains a logical constant or connective with various properties, but that constant should not be counted as a conditional.

7 Conclusion

In this paper I have presented an argument for the view that the laws of logic are laws of thought. In aid of this, I have surveyed several lines of argument for the claim that there are logical principles which are immune to rational doubt. If this is true, then it demands explanation. Any account of the nature of logical laws needs to take note of the inescapability or rational indubitability of logical principles. I have argued that a good explanation of this is that the laws of logic are constitutive norms of thought. The view that what it is to think just is to engage in a mental activity which is evaluable in light of certain principles explains why we can't shake off logic, although we can nevertheless make logical mistakes. Finally, I have considered some objections to and challenges for the proposed view. The resulting picture is that there are norms for thought, evaluability in light of which is constitutive of a mental activity being thought or reasoning. These norms are the basic, most fundamental laws of logic.[42]

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