A Rossian Account of the Normativity of Logic

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Suppose Madeline believes both (a) Matilda is not home and (b) if Matilda is not home, then she is at school. It appears, then, that Madeline *ought to* believe (c) Matilda is at school. After all, (a) and (b) logically entail (c). Were Madeline to disbelieve or suspend judgement about (c), we'd say she made a mistake. This suggests that *logic*—understood, roughly, as the subject that investigates entailment relations among truth-bearers that hold in virtue of their form—is normative.[1] It provides rules for correct reasoning which can be used to evaluate reasoners. Call this view *normativism*.

Despite its intuitive appeal, normativism is a controversial position. Some influential critics, such as Gilbert Harman, claim that logical rules provide bad or misleading rules for reasoning.[2] Others, such as Gillian Russell, claim that logic is wholly descriptive subject and thus *cannot*, given Hume's law, provide rules for reasoning.[3] We think these critics are mistaken. Our aim in this paper is to defend normativism by sketching an alternative way of thinking about

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[1] We assume, throughout, that 'logic' denotes classical first-order deductive logic. However, we think the position presented here is compatible with the possibility that the correct logic is non-classical.
[2] See Harman (1986).
[3] See Russell (2017) and Blake-Turner & Russell (forthcoming).

the force of logical rules. On our view, logical rules are best characterized, in a broadly Rossian manner, as *intellectual prima facie duties*; i.e., they provide standards for evaluating reasoning and reasoners that are universal and authoritative but not absolute. This position accommodates the inherent normativity of logic, contra Russell, while circumventing the challenges to normativism raised by Harman.

The plan for the paper is as follows. In section one, we present several familiar but weighty considerations in favor of normativism. In section two, we present Harman and Russell's arguments against normativism. In section three, we develop a preliminary version of our Rossian account of logical rules and use it to develop replies to Harman and Russell.

I.

Among teachers of logic and authors of textbooks, the *default* position is that logic provides rules for correct reasoning. As evidence, note that virtually every contemporary logic textbook defines 'logic' in an explicitly normative way. For instance, Barker-Plummer, Barwise, and Etchemendy (2011, p. 1) claim that the basic principles of logic provide a "standard of rationality."[4] Similarly, Warren Goldfarb (2003, p. 1) claims that:

> Logic is the study of principles of reasoning. It is concerned not with how people actually reason, but rather with how people ought to reason if they wish to ensure the truth of their results.

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[4] Barker-Plummer et al. (2011, pp. 1-2) go on to write: "…*all* rational inquiry depends on [the principles of] logic, on the ability of people to reason correctly most of the time, and, when they fail to reason correctly, on the ability of others to point out the gaps in their reasoning…acceptance of these commonly held principles of rationality is what differentiates rational inquiry from other forms of human activity." For a similar introductory level presentation of the normativity of logic see also Howard-Snyder, Howard-Snyder, and Wasserman (2012).

This suggests a uniformity of expert opinion—in favor of normativism—among logicians who write textbooks.[5] And this opinion is shared by many important historical figures, including Kant and Frege.[6]

There's also a widely held pedagogical view—aligned with the normativism of the textbook authors—according to which logic plays an indispensable role in students' intellectual formation. Introductory logic classes are often described as "tools" courses; i.e., courses that provide students with reasoning, writing, and argument evaluation skills (grounded in their ability to understand and apply logical rules) that will benefit them no matter their course of study or career trajectory. We philosophers typically appeal to these very considerations when asked to explain why logic courses satisfy institutional general education requirements. And logic students often agree with us; i.e., they often self-report that studying logic has enhanced their reasoning abilities and improved outcomes in their other courses.[7] This understanding of logic's pedagogical value rests on the idea that it improves intellectual performance by making implicit or partially understood rules for reasoning explicit and transparent. And this supports normativism.

Pedagogical considerations aside, there's also a familiar demarcation argument for normativism. The basic idea is that, absent its normativity, logic would be just another branch of cognitive psychology. But surely this is not so! Why not? One answer paraphrases Goldfarb:

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[5]It is worth noting, too, that this argument from expert testimony appeals to the judgments of philosophers who've done substantive and original work in logic. Goldfarb, Barwise, and Etchemendy are logicians, not just textbook authors.

[6]Russell (2017, p. 3) provides relevant quotes from Kant and Frege.

[7]For example, here is a review of Goldfarb's text (and class) posted on Amazon: "I was lucky enough to take Professor Goldfarb's Deductive Logic class six or seven years ago at Harvard. I continue to regard it as the best class I have ever taken. There's a cliché that a liberal arts education teaches you "how to think." I'm not sure what that's generally supposed to mean, but if there's any class that improved my ability to process information, construct strong arguments, and think critically, this was it. I wish Professor Goldfarb's class had been a Harvard requirement." See: https://www.amazon.com/Deductive-Logic-Warren-Goldfarb/dp/0872206602

psychology studies how rational agents *actually* think, while logic studies how they *ought to* think. And it is well known that much of our actual thinking isn't very good.[8] Logic provides the standards we need to express and unpack this judgment; i.e., it provides us with a basis for diagnosing and correcting bad thinking, reasoning, and argumentation. Thus, there's a clear basis for distinguishing between logic and the cognitive psychology of reasoning: the latter is inherently descriptive, while the former is inherently normative.

Taken together, the three considerations presented above yield a dialectical presumption in favor of normativism. When we introduce and explain logic's subject matter to students, curriculum committees, and ourselves, we make explicit reference to its role in regulating thought. Why do we do this? There's an obvious answer: it *appears that* logic provides rules for correct reasoning. Thus, heeding Aristotle's advice to trust the appearances, we should assume logic is normative unless presented with good reasons to think otherwise.

II.

It is one thing to affirm an inexplicit commitment to normativism. It's quite another to try to explain *how* logic regulates thought. And the available explanations of logic's normativity are not as straight-forward as our textbooks or syllabi suggest. This has led some philosophers to claim that the appearance of logical normativity is *just* an appearance. On their view, further investigation into the matter undermines normativism.

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[8]Indeed, some studies, such as those by Wason (1968), suggest that subjects tend to employ affirming the consequent reasoning patterns in certain contexts. But these empirical facts do not affect the logical point that these subjects shouldn't affirm the consequent, but should, instead, use modus ponens. It has also been argued that human reasoning relies on heuristics and biases that regularly impede the correct application of logical rules and the rules of probability theory. For the standard presentation of this argument see Tversky & Kahneman (1974).

Gilbert Harman argues, contra normativism, that the rules for reasoning provided by logic are neither comprehensive nor correct. He claims, instead, that there are many norms for reasoning, none of which fit neatly into the toolkit on offer in introductory logic courses.[9] The formal systems developed therein are concerned chiefly with capturing relations of necessary truth preservation among propositions. But, says Harman, the norms for reasoning concern a broader range of cases than can be accommodated by these formal systems. Indeed, much of our thinking concerns the evaluation and reexamination of our presuppositions in response to unexpected experiences. This involves a very complex interplay of norms belonging to a process Harman calls "reasoned change in view."[10]

Unfortunately, many of the inference rules presented in logic courses conflict with the principles governing reasoned change in view. For example, standard propositional logic says that any statement P entails a disjunctive statement including P. But this rule for disjunction introduction, if taken as a rule for reasoning, says one *ought to* believe any disjunction entailed by P: 'P or Q' or 'P or R' or 'P or Q or R', and so on to infinity. Other problem cases are familiar to all instructors and students of logic: from a set of inconsistent premises, infer anything whatsoever; from any set of premises (including an empty set) infer a tautological sentence, for example, 'If P then P'. Harman argues that inferences such as these, although logically valid, are hardly examples of good reasoning. In fact, sometimes they actually *interfere* with good reasoning. We would likely issue a negative evaluation of, for instance, the reasoner who aims to explicitly believe all true disjunctions implied by her belief that P.

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[9]Harman (1986 p. 123)
[10]*ibid.,* p 4

Harman suggests we'd reason better if we adopted a principle of clutter avoidance, which says: "don't clutter your mind with trivialities."[11] One would violate this principle if one used the disjunction introduction rule to infer all the true disjunctions implied by one's beliefs. Notice, however, that the principle of clutter avoidance, in restricting the application of disjunction introduction, appears incompatible with the rule that a subject's beliefs ought to be closed under logical entailment. That rule, which has a certain amount of intuitive force, says: one ought to believe that p whenever p is logically entailed by one's other beliefs. Given the number of obvious exceptions to the closure rule, perhaps we should conclude, with Harman, that it's unwise to treat the patterns of necessary truth preservation presented in first-order logic as rules for correct reasoning.

Gillian Russell attacks normativism from a different direction. She claims that a science can be assigned one of three grades of normative entanglement.[12] A science is normatively entangled in the first degree if normativity is inherent to its subject matter; e.g., ethics and aesthetics.[13] A science is normatively entangled in the second degree if field-internal truth claims entail normative conclusions. Finally, a science is normatively entangled in the third degree if its normativity is entailed by field-external considerations.

Physics and mathematics are clear examples of sciences that are normatively entangled only in this third and weakest sense. Both subjects aim to describe the nature of and laws governing the phenomena they investigate; neither contains claims or principles that are inherently normative or that directly entail normative conclusions. Still, we recognize that it's good to study matter and numbers, respectively. And clearly, given the epistemic norm that says,

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[11]*ibid.,* p. 12

[12]We use 'science' as a synonym for 'wissenschaft,' which denotes any systematic field of academic inquiry.

[13]Russell (2017, p. 9)

roughly, "you ought to believe what is true", one ought to believe, for instance, that $e^{i\pi} + 1 = 0$. The same, says Russell, is true of logic.

Russell thinks logic is best characterized as a descriptive field that investigates relations between abstract objects. She notes that first-order logic doesn't make any claims about beliefs or reasons. And it doesn't contain any explicitly normative language. There are no "oughts" embedded in the formal systems taught in logic classes. In this respect, logic is like mathematics, except it studies truth-bearers (such as propositions) rather than numbers. Because there's general confusion about the subject matter of logic, it's more difficult, when compared to math and physics, for us to recognize that it's a descriptive field. This confusion arises from the fact that it's not immediately obvious that logic is about truth-bearers, since (a) they're frequently represented using letters or variables rather than referring terms and (b) they're almost always about things other than other than truth-bearers (i.e., they're about things like the moon, the president, and everybody who loves somebody). Like math and physics, logic only yields normative recommendations about what to believe when conjoined with field-external epistemic norms, like "believe what is true" and/or "maximize the coherence of your belief set." Thus, although we ought to reason and form beliefs in accordance with logic, this isn't because logic itself makes any claims that are normative for belief, thought, or reasoning.

III.

Consider the closure rule discussed above: one ought to believe that p whenever p is logically entailed by one's other beliefs. This rule explains our judgments in many specific cases; e.g., the Madeline case presented in the introductory paragraph. Thus, the closure rule has a significant amount of initial plausibility. What if this rule expresses a Rossian prima facie duty

rather than absolute rational requirement? We think a Rossian normativism about logical rules can circumvent the challenges raised by Harman and Russell.

W. D. Ross claims that common sense ethical norms—specifically, beneficence, non-maleficence, justice, fidelity, reparations, gratitude, and self-improvement—are best understood as prima facie duties. On his view, a prima facie duty is a permanent, excellent, non-absolute moral reason that counts for or against one's doing φ in context c.[14] Thus, prima facie duties are like a set of objective guidelines for determining one's actual duty in c. Ross thinks the fact that φ would be beneficent is always an excellent reason for φ-ing, although it's not always a decisive reason. After all, φ-ing in c might be unjust. Absent any conflicting moral considerations, however, the fact that φ-ing would be beneficent in c yields an *ultima facie* duty to φ in c.

Ross doesn't think there's a strict hierarchy among the prima facie duties. In the right circumstances, any of them might override the others.[15] Nevertheless, some duties are weightier than others; e.g., reparation, fidelity, and non-maleficence typically override beneficence.[16] Non-maleficence thus carries a presumption of priority; in general, we shouldn't impose harm on people to benefit others. But non-maleficence can, of course, be overridden. How do we decide when? Ross' answer, paraphrasing Aristotle, is that in the final instance, the determination of one's actual duty in c rests with perception. The virtuous moral reasoner, having acquired the capacity to exercise phronesis, will *just see* that, for instance, we may impose a minor harm on Jim in order to save Jane's life.[17]

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[14]This definition is adapted from Shafer-Landau (2021, p. 252).

[15]Ross (2002, p. 41-42).

[16]For instance, Ross (2002, p.30) writes: "…it is generally recognized that, *ceteris paribus*, we should pay our debts rather than give our money in charity, when we cannot do both."

[17]*ibid.,* p. 42

Applying a Rossian framework to the closure rule yields the following: If *p* is logically entailed by S's beliefs, then S has a permanent, excellent, non-absolute, reason to believe that *p*. Absent the presence of overriding rules/reasons, closure gives S a decisive reason to believe that *p*. Of course, as Harman has taught us, there are often excellent reasons to defy closure. Indeed, the principle of clutter avoidance will override the closure rule in many instances. Still, a reformed closure rule has a significant role to play in the guidance and evaluation of reasoning.

If I become aware that my present beliefs entail that *p*, I arrive at a doxastic choice point. I must *do something*. I might affirm that *p*. I might reject one of the beliefs that yields the entailment. I might discern that the closure rule is overruled by some other epistemic rule. Importantly, however, indifference concerning *p*—i.e., unreflective shoulder-shrugging suspension of judgment—isn't an option. In this way, logic retains a normative grip on me. For instance, suppose I believe (i) If Jane is home, then her porch light will be on and (ii) Jane's porch light is not on. If, on reflection, I do not conclude that (iii) Jane isn't home, then, at the very least I seem to owe an explanatory debt. And "I just can't quite bring myself to believe she isn't home" or "who knows and who cares if she's home" won't pay it. This point aligns with the Rossian idea that a prima facie duty converts to an *actual* duty when there are no other duties weighing against it.

Harman provides examples in which obedience to the rules of logic would lead to doxastic ruin (or, at the very least, an irrational sort of belief hoarding). But unless normativism presupposes that logical rules are totally decisive—i.e., that reasoning must always, only, and absolutely obey logical rules—these examples don't undermine it. Indeed, Rossian normativism rejects such presuppositions. On our view, although logic provides *some* of the correct rules for reasoning, these rules are non-exclusive, can be overridden, and should be situated within a

broader set of rules for reasoning. This set includes familiar epistemic norms (i.e., do not believe

falsehoods) and psychologically-informed norms of the sort that excite Harman (i.e., you lack the

cognitive capacity to work out the logical consequences of all your beliefs, so don't try).[18] Thus,

the aforementioned explanatory debt can be always be paid by appeal to an overriding rule for

reasoning.

It is worthwhile to inquire into how to situate the norms of deductive logic among this

broader set of norms for reasoning. It seems that some logical rules will carry a presumption of

priority (like the prima facie duty of non-maleficence). For instance, although we cannot fully

defend the idea here, the rule against forming logically inconsistent beliefs seems unlikely to be

overridden in ordinary contexts.[19] If that's correct, then, even if logical rules don't quite amount

to laws of thought, our view can accommodate the traditional position that logic has an

especially important role to play in regulating thought.

How do we determine what to believe when logical rules conflict with other rules for

reasoning? As in Rossian ethics, we think phronesis is the best and only option. Although there's

no guarantee she'll get things right, the well-trained reasoner will generally recognize which

rules for reasoning win out in cases of conflict. But there's no formula for achieving this

recognitional capacity. To become good reasoners, then, we'll need to acquire the intellectual

virtues.[20]

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[18]Compare to Harman (1986, p. 31).

[19]Indeed, the examples that support so-called "rational inconsistency," such as the preface paradox, do so in unusual cases where the object of evaluation is the entire set of an individual's doxastic attitudes or a large, interconnected subset thereof. This does not show, however, that we can adopt the attitude of indifference when, say, we recognize a specific logical inconsistency in our thought, in ordinary discourse, or in an argument we're writing up for publication.

[20]In addition, we suspect that intellectual virtue will be necessary for successful application of specific rules for reasoning. For instance, the question of what counts as a trivial proposition seems like it won't be answered with a formula or a set of jointly necessary and sufficient conditions. Thus, successful application of the principle of clutter avoidance seems to require intellectual virtue. For want of space, we take no stance on the matter of how to best characterize the intellectual virtues.

At this point in the discussion, Russell might interject as follows: even if what you've said is correct, none of this shows that *logic itself* is normative. Indeed, your Rossian iteration of the closure rule is just a bridge principle. Bridge principles were introduced into the literature on the normativity of logic in an attempt to clarify the relationship between logical entailments and the norms governing belief. Generically, these principles take the form of a material conditional in which the antecedent is a statement about a logical entailment and the consequent is a statement about a doxastic norm (which expresses a rule for belief formation that conforms to the entailment described in the antecedent).[21] Russell thinks bridge principles fail to show that logic is normative, because they're either entailed by field-internal logical statements about the nature of entailment (in which case they're descriptive, since logic is a descriptive subject and bound, like all sciences, by Hume's law) or they're entailed by logic together with external epistemic rules (in which case they're not *internal to* logic). Since we cannot pull a normative rabbit out of a descriptive hat, the only way a bridge principle could secure the normativity of logic would be if the entailment stated in its antecedent were itself a normative statement.[22]

We accept Russell's pessimistic assessment of bridge principles. If the subject matter of logic isn't normative, then it's unclear how a bridge principle could be used to secure its normativity. Nevertheless, we don't think Russell has shown that logic is a wholly descriptive subject.[23] She succeeds in showing that logical descriptivism is a live option; i.e., that there's a

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[21] Sustained discussion and evaluation of bridge principles can be found in MacFarlane (2004) and Steinberger (2016). Dutihl-Novaes (2015) proposes an alternative conception of bridge principles, according to which they link logical rules to interpersonal dialectical norms rather than agent-centered norms for reasoning. Although we cannot explore her view here, we suspect there is a way to formulate Dutihl-Novaes' view so as to complement the Rossian account of logical normativity.

[22]This argument appears in Blake-Turner & Russell (forthcoming).

[23] She notes (2017, p.9) for instance, that Beall and Restall (2000) think logic is normatively entangled to the first degree. But, aside from her attempts diagnose confusions that she thinks can lead people to embrace normativism, her papers contain no direct argument for the conclusion that normativism is incorrect; instead, they focus on presenting and explaining her alternative conception of logic.

prima facie plausible position according to which validity *just is* a matter of truth-preservation within a properly constructed formal system.[24] And she's correct that, within a given formal system, the sentences about valid entailment relations are true in virtue of descriptive facts about its superstructure. But Russell provides no direct argument for thinking that this is the *correct* account of validity.

Indeed, Russell's account of validity raises an important question: why are we interested in studying relations of implication/truth-preservation in formal languages? The textbook authors' answer is that this teaches us something about how to reason well.[25] But why? One answer is that prior to any understanding of formal logic or formal languages, we can recognize the difference between good and bad arguments and inference patterns.[26] Logic aims to systematically investigate the properties that make the good arguments good and the bad arguments bad. Since validity is a value conferring property, it appears to be an inherently

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[24]Perhaps Russell's target audience is people who already harbor doubts about normativism. If, for instance, reading Harman has led you to wonder whether logic has much to do with reasoning, then Russell's descriptivist account of validity might be just the thing you're looking for. By analogy, if you doubt that compatibilism is a defensible view, but haven't yet rejected it, then simply being presented with a prima facie plausible model for libertarianism might lead you to do so. Still, we don't think the lesson of Harman's work is that logic is irrelevant to good reasoning. Indeed, rather than undermining the normativity of logic, we think the issues Harman raises help to *clarify* the way in which logic is normative for reasoning.

[25]For instance, Barker-Plummer, Barwise, and Etchemendy (2011, p. 2) assert that "to study logic is to use the methods of rational inquiry on rationality itself."

[26]This is a kind of Chisholmian particularism about validity. Particularism in epistemology says, roughly, that we can identify particular paradigm instances of knowledge as instances of knowledge without having to appeal to any general epistemological principles. We don't need to have any general epistemic principles in our grasp to recognize "2 + 2 = 4" as a paradigm case of knowledge. Along the same lines, we don't need to appeal to any general logical principles to recognize that particular instances of affirming the consequent are also instances of bad argumentation. See Chisholm (1982) for a fuller account of particularism.

normative property.[27] This suggests, then, that the presumption in favor of (a suitably liberal

Rossian) normativism stands.[28]

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[27]What kind of value does it confer? Presumably, it's epistemic value. One conclusion we should like to draw, then, is that it is not at all clear that we can cleanly or clearly disambiguate logical and epistemic rules. Russell seems to take it for granted that epistemic rules are one thing and logical rules quite another. We think, however, that there is more overlap than she is prepared to grant.

[28]Thanks to Dave Beisecker for his interesting and thoughtful comments on this paper. Thanks also to Scott Aiken and Todd Stewart for helpful discussion.

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