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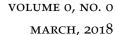
LOGICAL PLURALISM AND LOGICAL NORMATIVITY

Florian Steinberger

Birkbeck College

1. Introduction

This paper explores an apparent tension between two widely held views about logic: that logic is normative and that there are multiple equally legitimate logics. The tension is this. If logic is normative, it tells us something about how we ought to reason. If, as the pluralist would have it, there are several correct logics, those logics make incompatible recommendations as to how we ought to reason. But then which of these logics should we look to for normative guidance? I argue that inasmuch as pluralism draws its motivation from its ability to defuse logical disputes—that is, disputes between advocates of rival logics—it is unable to provide an answer: pluralism collapses into monism with respect to either the strongest or the weakest admissible logic.

The paper proceeds as follows: Section 2 provides a novel analysis of the normative structure of logical disputes. Logical disputes involve various types of normative assessments. In particular, I distinguish *external* assessments that question the correctness of the principles to which the agent assessed holds herself, and *internal* ones by which we criticize the agent for her failure to comply with her own principles. I identify and articulate the principles underlying these normative assessments. Section 3 offers a taxonomy of logical pluralisms and investigates the extent to which each of the taxa leaves room for the aforementioned normative assessments. Section 4 explores the consequences of the fact that an important class of pluralisms—the class that incorporates J.C. Beall and Greg Restall's influential account—is incompatible with external assessments. I demonstrate that the vulnerability of these views to the well-known 'collapse argument'[1] is a consequence of their inability to account for such assessments. Ultimately

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1. See G. Priest, "Logic: One or many?," in J. Woods and B. Brown (eds.), *Logical consequences: Rival approaches* (Oxford: Hermes Scientific Publishers, 2001), G. Priest, *Doubt truth to be a liar* (Oxford: Oxford University Press, 2006), S. Read, "Monism: The one true logic," in D. DeVidi and T. Kenyon (eds.), *A Logical approach to philosophy: Essays in honour of Graham Solomon* (Springer, 2006) and R. Keefe, "What logical pluralism cannot be," *Synthese* 191 (2014).

such forms of pluralism suffer an 'upward' collapse into monism with respect to the strongest admissible logic. Section 5 investigates an alternative form of pluralism according to which logics are correct only relative to their appropriate domains of application. Drawing on the literature on alethic pluralism, I argue that at least when it comes to certain forms of cross-domain discourse such forms of domain-relative pluralism are subject to a different but symmetrically analogous form of 'downward' collapse into monism with respect to the weakest logic. Section 6 argues that on account of the findings of the previous section, the distinction between monism and domain-relative pluralism is merely terminological. Finally, I conclude that the only viable forms of 'pluralism' in light of the normativity of logic are ones that allow for normative conflicts and hence logical rivalry.

Before we proceed a number of preliminary remarks are in order. For one, I rely on the controversial assumption that there is a sense in which logic can be said to be normative. Gilbert Harman has famously challenged the time-honored conception of logic as a normative discipline.[2] His objections have been developed and refined in various interesting ways.[3] I side with those who have sought to rehabilitate the normativity of logic,[4] However, those on the fence about the normative status of logic may read the paper as a conditional claim. Certain kinds of pluralists, who are firmly on the other side of the fence may read it as a reductio.[5] What is more, I assume that the connection between

principles of logic and norms of reasoning can be rendered explicit in the form of what John McFarlane has called a 'bridge principle.'[6] A bridge principle can be represented schematically as follows:

- ($\star$) If $A_1, \ldots, A_n \models C$, then $N(\alpha(A_1), \ldots, \alpha(A_n), \beta(C))$.

The principle takes the form of material conditional, where the conditional's antecedent states 'facts' about logical consequence and where the principle's consequent sets forth a normative constraint on the agent's doxastic attitudes (belief, disbelief, degree of belief) towards the relevant propositions. The attitudes are represented by 'α' and 'β' on account of the fact that they may be (but need not be) distinct attitudes.[7] Alternatively, a bridge principle's antecedent might appeal not to entailment facts but to the agent's attitudes towards entailments facts:

- ($\star$-γ) If $\gamma(A_1, \ldots, A_n \models C)$, then $N(\alpha(A_1), \ldots, \alpha(A_n), \beta(C))$,

where γ might represent the attitude of knowing, believing, etc. By varying these different parameters, we can generate a considerable number of bridge principles. Here, to illustrate, are three examples:

1. If $A_1, \ldots A_n \models C$, then S ought to believe C, if S believes the A_i.
2. If S believes that $A_1, \ldots A_n \models C$, then S ought not (believe the A_i and disbelieve C).
3. If $A_1, \ldots A_n \models C$, then S has reason to ensure that $cr(C) \geq cr(A_1) + \ldots + cr(A_n) - (n-1)$

In 1. 'ought' takes narrow scope with respect to the conditional in the consequent. It simply states that one's beliefs ought to be closed under logical consequence. 2. is restricted to believed entailment. 'Ought' here takes wide scope over the embedded conditional. Consequently, rather than prescribing a particular belief in the manner of 1., the

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2. See G. Harman, *Change in view: Principles of reasoning* (Cambridge: M.I.T. Press, 1986).
3. See *inter alia* S. Dogramaci, "Reverse engineering epistemic rationality," *Philosophy and phenomenological research* 84 (2012), S. Dogramaci, "Communist conventions for deductive reasoning," *Noûs* 49 (2015) and C. Dutilh Novaes, "A dialogical, multi-agent account of the normativity of logic," *Dialectica* 69 (2015).
4. See in particular , J. MacFarlane, In what sense (if any) is logic normative for thought?, 2004, F. Steinberger, "Consequence and normative guidance," *Philosophy and phenomenological research* 95 (2017). See F. Steinberger, "The normative status of logic," in E. Zalta (ed.), *The Stanford encyclopedia of philosophy*, spring 2017 edition (Metaphysics Research Lab, Stanford University, 2017) for a survey of the literature.
5. Note, however, that Beall and Restall (henceforth, 'B&R') declare a firm commitment to the normativity of logic J. C. Beall and G. Restall, *Logical pluralism*

(Oxford: Oxford University Press, 2006).
6. See MacFarlane, *op. cit.*.
7. For simplicity's sake, I set aside suspension of belief.

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principle *pro*scribes configurations of attitudes in which the agent simultaneously believes the premises and disbelieves the conclusion. Finally, 3. is a principle governing degrees of belief, represented by the agent's credence function $cr(\cdot)$. Moreover, it employs the defeasible 'has reason'-operator (as opposed to the strict 'ought'). The principle states that the agent has reason to ensure that her degrees of belief respect the stated inequality.[8]

Furthermore, we distinguish three types of normative functions logic might be thought to perform.[9] Logic might be thought to deliver

- *directives*: first-personal instructions guiding the agent in her doxastic conduct;
- *evaluations*: third-personal evaluative standards against which to classify doxastic states as correct or incorrect.
- *appraisals*: third-personal norms that underwrite our attributions of blame and praise to others.

Different bridge principles will be more or less well suited to play a given normative role. For instance, principles like 1. and 3. whose antecedents are insensitive to the agent's recognitional abilities, are unlikely to be serviceable as directives, because ordinary agents with limited logical abilities are in no position to follow them. The same goes for appraisals: it would be inappropriate to fault our epistemic peers for failing to comply with normative principles they cannot possibly live up to. Directives and appraisals may thus be better expressed by attitudinal principles exemplified by 2. That is not to say, however, that there is no use for unrestricted principles; they naturally express objective evaluative standards. After all, the logical coherence of my doxastic state depends on what the logical facts are, not on what I take

those facts to be. With these preliminaries in place, let us now turn to our first order of business: the task of analyzing logical disputes.

2. Logical disputes

The pluralist's role, in logic as elsewhere, tends to consist in defusing disputes she regards as wrongheaded and futile. She seeks to do so by demonstrating how, contrary to appearances, all parties to the dispute can be right. Carnap regarded it as one of the 'chief tasks' of *The logical syntax of language* to 'eliminate the standpoint' according to which there is but one 'correct' logic 'together with the pseudo-problems and wearisome controversies which arise as result of it'.[10] His deflationary spirit towards logical (and other, in particular metaphysical) disputes is enshrined in his famous principle of tolerance. B&R too reject the very possibility of logical dispute for admissible logics:[11]

> We do not take different logics to be rival analyses of the one fundamental notion (of logical consequence) because we think that the one fundamental notion of logical consequence can be made precise in different ways [...] These different relations are not in competition and they are not rivals. [12]

Logical disputes, then, are ultimately 'based on a confusion' according to the pluralist.[13] Assuming she is right, the pluralist is a heroic character who delivers us from our proclivity for getting embroiled in fruitless squabbles.

With that, let us set the scene. Our story begins prior to the pluralist's appearance, with the logical dispute between Clare and Ira. Clare

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8. The principle is proposed in this context by . It is well-known from probability logic, see E. Adams, *A primer of probability logic* (Stanford, CA: CSLI Publications, 1998).
9. See F. Steinberger, "Three ways in which logic might be normative," *Journal of philosophy* (Forthcoming).

10. R. Carnap, *The logical syntax of language* (London: Routledge, 1937), p. xiv
11. Note that B&R do not regard *any* logic as a legitimate contender. Their pluralism is confined to a restricted set of logics that satisfy their admissibility criteria. Inasmuch as B&R and their pluralist brethren seek to dissolve logical disputes with respect to admissible logics, my characterization is nevertheless apt.
12. Beall and Restall, *op. cit.*, p. 88
13. G. Russell, "Logical pluralism," in E. Zalta (ed.), *Stanford enclodedia of philosophy* (2014)

and Ira are accomplished logicians and philosophers. They agree on a significant number of thorny issues in the philosophy of logic. For instance, both accept my assumption of logic's normativity for reasoning, and that its normative role can be explicitly articulated by means of bridge principles. Also, both are monists: they agree that there is but one correct all-purpose logic. They even agree on what it means for a logic to be correct.[14] But here is the one significant point of disagreement: Clare is an advocate of classical logic while Ira is an advocate of intuitionistic logic. Ira is in the grip of Dummettian arguments in favor of intuitionist revisions of our logical practices; Clare remains unconvinced.[15] Even after countless long nights of well-meaning and intellectually honest debate the two are unable to overcome their differences. It does not matter, for our purposes, who (if either of them) is right. For the sake of the argument, though, let us assume that there is a fact of the matter as to which logic is correct (and that one of the two is).

Let us, then, take a closer look at Clare and Ira's dispute, with a view to making manifest the principles underpinning the normative judgments, assessments and criticisms at the root of their dispute. The principles in question, unlike the closely related standard bridge principles, have not been studied to my knowledge. A proper understanding of the normative structure of logical disputes will thus be of independent philosophical interest. As we will see, though, our analysis has the further benefit of illuminating the normative implications of various forms of pluralism.

In keeping with our provisional assumption of monism, let us begin by spelling out the evaluative standard induced by the correct logic. The following principle captures the idea:

(Objective) If $A_1, \ldots A_n \models_{\mathcal{L}} C$, then $N(\alpha(A_1), \ldots, \alpha(A_n), \beta(C))$.

(Objective) is a proto-bridge principle. Converting it into a full-fledged principle requires that we specify a good deal of additional information: the type of deontic operator featured, its scope, the type of doxastic attitudes governed, etc. However, even at this level of abstraction, a number of features are noteworthy. For one, the principle's normative role is evaluative. As such, our principle is not in the business of providing direct guidance to the agent, nor does it support criticisms or attributions of blame. Its primary purpose, rather, is to serve as an objective synchronic standard that supports classifications of belief sets into logically 'correct' and logically 'incorrect' ones.[16] Accordingly, assuming that 'ought' is the deontic operator featured in (Objective), 'ought' is itself to be understood as *evaluative*. Unlike *deliberative* or *practical*

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14. At a minimum, there are two ways in which logics might be said to be correct, depending on whether one conceives of logic fundamentally as setting forth what we might call (somewhat grandiosely) *the laws of being* or *the laws of thought*. On the former view logic is, much like mathematics, 'about the world' (see e.g. T. Williamson, "Justification, excuses and sceptical scenarios," in F. Dorsch and J. Dutant (eds.), *The new evil demon* (Oxford: Oxford University Press, Forthcoming)). It provides an account of the most general features of reality. On the latter view logic is concerned primarily with our systems of conceptual or linguistic representation. Its aim is, in Priest's words, 'to determine what follows from what—what premises support what conclusions' (Priest, *op. cit.*, p. 196). My distinction is in line with Ole Hjortland's helpful discussion of the opposition of Timothy Williamson's 'deflationary' approach and Graham Priest's 'metalinguistic' approach (O. Hjortland, "Anti-exceptionalism about logic," *Philosophical studies* 174/3 (2016)). My aim here is not to take sides, but simply to note that different conceptions of the nature and purpose of logic entrain different notions of what it means for a logic to be correct. Of course, some philosophers reject the very idea that logics can be meaningfully said to be correct. This, famously, was Carnap's view. It is also endorsed by Field, to whom I return in section 3 (H. Field, "Pluralism in logic," *Review of symbolic logic* 2 (2009)).

15. I picked the dispute between classical and intuitionistic logic for ease of exposition. Justifiably or not, the Dummettian case for logical revision has somewhat fallen out of fashion. Nothing hangs on the specifics of the case, though. The reader may plug in her favorite argument in support of non-classical logics (quantum logics, relevant logics, dialetheic, paracomplete, supervaluationist, etc.).

16. See Steinberger, *op. cit.* for further discussion. See also e.g. K. Easwaran and B. Fitelson, "Accuracy, coherence, and evidence," in T. Szabo Gendler and J. Hawthorne (eds.), *Oxford studies in epistemology* (2015), fn. 6, 7, 8 and M. Titelbaum, "Rationality's fixed point (Or: In defence of right reason)," in J. Hawthorne (ed.), *Oxford studies in epistemology* (Oxford University Press, 2015), p. 7 for examples of principles of rationality construed as evaluations in this sense.

'ought's, evaluative ones are not agentive. Instead they present certain states of affairs as generally good or correct, and others not. As such it is neither relativized to the agent's ability to recognize entailments (whence the non-relativized antecedent), nor is the 'ought' of the 'can'-implying variety.

For the sake of concreteness, it will be useful in the following to consider a fully articulated principle:

> (Objective -) If $A_1, \ldots A_n \models_{\mathcal{L}} C$, then S ought not (believe the A_i and disbelieve C).

I do not endorse (Objective -) or any other specific principle here. As I discuss in section 3 below, negative principles have certain drawbacks.[17] Nevertheless, it will serve as our go-to principle for purposes of illustration. My aim here is merely to identify the general *form* of the principles underwriting the normative assessments within logical disputes. I leave the task of determining the specifics of the principle's parameter settings for another time.

That said, (Objective -) is *negative* (whence the minus sign), because it enjoins us not to *dis*believe certain propositions (given one's belief in the premises), as opposed to issuing a *positive* injunction to believe. Also, it is a wide scope principle. Finally, '$\mathcal{L}$' stands for whatever logic is in fact correct (in our example, the candidates are the classical consequence relation ($\models_{\mathcal{C}}$) or the intuitionistic one ($\models_{\mathcal{I}}$). The correct logic, whichever it is, induces a corresponding objective evaluative norm.

A surprisingly under-explored fact in the literature on bridge principles is that principles in the mould of (Objective) fail to capture a central dimension of our normative assessments. Let us imagine that intuitionistic logic turns out to be correct. Suppose now that Clare, the classical logician, infers A from $\neg\neg A$ (where she has no independent grounds for believing A).[18] The inference, clearly, falls foul of intuition-

istic strictures. However, (Objective) does not tell us this. It detects only *sins of omission*—when an agent fails to appropriately take into account the logical implications of her beliefs; it provides no safeguard against *sins of comission*—when an agent draws inferences that are not sanctioned by the correct logic. What is needed, therefore, is an additional principle that grounds the negative evaluation of Clare's inference:

> (Objective Commissive) Assuming that (Objective) is correct with respect to $\mathcal{L}$ and that S, has no logic-independent grounds for believing C, the following holds:
> If it is the case that (S is permitted to believe C, if S is permitted to believe the A_i), then $A_1, \ldots A_n \models_{\mathcal{L}} C$.

Note that the restriction is indispensable. It might well be permissible for S to believe C on account of C's being non-logically (analytically or materially) entailed by the A_i. Instantiating the principle in the context of our example and contraposing we arrive at the conclusion that since $\neg\neg A \not\models_{\mathcal{I}} A$, Clare's inference to A is impermissible. For symmetry's sake, we should rename (Objective) and it instantiations, '(Objective Omissive)'.

The example of Clare's erroneous inference highlights another important feature of logical disputes: by Clare's own lights, the inference was not erroneous. That is, the correct standards of logical coherence, as codified by (Objective Omissive) and (Objective Commissive), deviate from what Clare takes the correct standards to be: her *subjective evaluative standpoint*. The principle expressing Clare's evaluative standpoint must therefore articulate the evaluative standard to which she holds not just herself, but all of us based on *her* understanding of what the correct consequence relation is. It can be formulated thus:

> (Subjective Omissive) If S endorses $A_1, \ldots A_n \models_{\mathcal{L}} C$, then, S maintains that, for every agent S', $N(\alpha(A_1), \ldots, \alpha(A_n), \beta(C))$.[19]

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17. For a fuller discussion, see Steinberger, *op. cit.*.
18. By 'no independent grounds' I mean that there are no grounds for forming the belief in A other than its putative logical relation to $\neg\neg A$. The inference occurs on the basis of Clare's belief or supposition that $\neg\neg A$.

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19. Given our assumptions, it is natural to stipulate that one endorses a logic just in case one takes it to be correct or among the best available logics.

The corresponding negative principle is this:

(Subjective Omissive -) If S endorses $A_1, \ldots A_n \models_{\mathcal{L}} C$, then, S maintains that, for every agent S', S' ought not (believe the A_i and disbelieve C).

Clare and Ira's evaluative standpoints can thus be represented by the appropriate classical and intuitionistic variants of (Subjective Omissive). Both contend that their respective subjective evaluative standpoints are in line with the correct objective evaluative standard represented by (Objective Omissive).

Notice that according to (Subjective Omissive) the agent commits herself to a particular evaluative standard by endorsing a logic, she does not have to endorse particular logical laws for those laws to be normatively binding. That is, in endorsing the logic, the agent willingly takes on a *wholesale* commitment to all concomitant normative demands, whether or not she is in a position to recognize them. (Subjective Omissive), while relativized to the agent, is thus still an evaluative principle and so is not relativized to the agent's beliefs or logical knowledge.

(Subjective Omissive) too requires a commissive counterpart. When Clare infers A from $\neg\neg A$ (where she has no independent grounds for believing A), the inference is licensed from Clare's evaluative standpoint, but not from Ira's thus prompting criticism. Ira's criticism of Clare would thus seem to rely on a subjective version of (Objective Commission):

(Subjective Commissive) Assuming S endorses (Subjective Omissive) with respect to $\mathcal{L}$ and that the agent assessed, S', has no logic-independent grounds for believing C, the following holds: If it is the case that (S' is permitted to believe C, if S' is permitted to believe the A_i), then $A_1, \ldots A_n \models_{\mathcal{L}} C$.

Imagine now that Ira illicitly (by her own intuitionistic standards) appeals to the law of double negation elimination (DNE) in her reasoning. Clare is well within her rights to criticize Ira. Clearly, though,

she does so not because Ira's reasoning is at odds with her (Clare's) classical viewpoint—it patently is not—but because Ira is contravening her own (Ira's) evaluative standards. In other words, Ira manifests a kind of internal incoherence. Call this an *internal* normative assessment in contrast to the principles we have previously encountered all of which underwrite *external* assessments. Internal assessments criticize the agent's failure to reason in conformity with her own evaluative standpoint; external assessments relate to criticisms of the evaluative standard itself. Here is how we might capture internal assessments:

(Internal Ommissive) S D [endorse $A_1, \ldots A_n \models_{\mathcal{L}} C$ only if P]

Here D is a deontic operator ('ought' or 'has reason') and P is an appropriate pattern of S's attitudes towards the premises A_i and the conclusion C. Spelled out in the manner of our stock example we get:

(Internal Omissive -) S ought to [endorse $A_1, \ldots A_n \models_{\mathcal{L}} C$ only if (S does not disbelieve C, if S believes the A_i)].

Internal criticisms are grounded in a (presumed) obligation to ensure that one manage one's beliefs in ways consistent with one's own evaluative standards. One is incoherent in this sense if one endorses a logic (and the constraints on belief it imposes) while believing a premise of a valid argument (by that logic's standards) and simultaneously disbelieving its conclusion.

The principle is characterized by its distinctive logical form: the deontic operator takes *super wide scope* over the conditional as a whole (as opposed to familiar wide scope principles that typically operate on the consequent of the main conditional only). S can in principle discharge her obligations in one of two ways: either by conforming to her evaluative standards or by revising those very standards by endorsing a different logic. Though both are live options in principle, in practice the route of logical revision, like that of religious conversion, is one scarcely travelled. One does not renounce one's logical commitments on a whim.

Clearly, as Ira's example shows, internal criticisms might also target

errors of commission relative to the agent's own evaluative standard:

(Internal Commissive) S D [endorse $\mathcal{L}$ only if (if $A_1, \dots A_n \not\models_{\mathcal{L}}$ C, then S does not infer C from the A_i, unless there are logic-independent grounds for doing so)].

D, as before, might either be our *ought* or our *has reason*-operator.

A final comment concerning the peculiar normative role performed by internal criticisms: internal criticisms underwrite standpoint-relative third-personal assessments, which makes them appraisals. What makes them peculiar is that while they are relativized to the appraisee's evaluative standpoint, they are not relativized to the appraisee's recognitional capacities. For all we have said, our appraisal of Ira would be equally negative in a case where she fails to take into account an extraordinarily complex intuitionistic argument as it would be in the case in which, in a careless moment, she slips up and helps herself to an application of DNE in everyday reasoning. In both cases she falls foul of her own standards. All the same, we ordinarily do want to distinguish between these two types of failings: the first is due to her all-too-human cognitive limitations; the second is an honest mistake that warrants criticism. To perform both types of assessments, I think of appraisals as variably exigent: on the generous end of the spectrum we allot blame relative to the agent's actual logical capacities; on the unforgiving end of the spectrum we allot blame relative to the agent's evaluative standards regardless of whether she is in a position to live up to them. In between, our appraisals might be relativized to increasingly demanding standards as to which logical implications of the agent's preferred logic she may reasonably be expected to appreciate. (Internal Commissive) sits flatly at the unforgiving end of the spectrum. But it is not hard to see how it might be tempered by restricting the principle's antecedent to the implications the agent takes to obtain or can reasonably be expected to obtain.

In summary, we have uncovered that logical disputes are comprised of two main types of normative assessments: external ones and internal ones. External assessments are concerned with the correctness of the evaluative standards; internal ones are concerned with coherence between the agent's reasoning and the subjective standards to which she holds herself.[20] Among the external assessments we may distinguish (i) the objective evaluative standard and (ii) the agents' subjective evaluative standpoints. Finally, all of these assessments stem from principles, which, in turn, come in two flavors: omissive ones and commissive ones. This rounds up our analysis of the normative structure of logical disputes for now. We return to these principles at the end of the next section. First, though, we must introduce the pluralist.

3. Pluralism

The time has come for the pluralist to make her long awaited appearance. The pluralist maintains that the disputing parties' claims are not genuinely in conflict.[21] For example, although Clare accepts and Ira rejects DNE, the pluralist contends that both can be right. Pluralisms differ over how they account for this possibility. In the following I classify pluralisms accordingly.

Let us immediately set us aside a number of uncontroversial (and hence uninteresting) forms of pluralism. No one doubts that there is a plurality of 'pure logics' in Graham Priest's terminology.[22] Not even the most steadfast monist disputes that there are any number of mathematical structures that we customarily call 'logics' and that may make for worthwhile objects of mathematical study. Nor does the fact that many such logics lend themselves more or less well to different applications—for example, classical propositional logic may be used to model electric circuits, the Lambek calculus naturally models phrase structure grammars, and so on—pose a challenge to the monist. Finally, one may generate a form of pluralism by varying one's logical vocabulary.[23] Which arguments count as valid, depends on our

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20. Of course an agent may also criticize peers who share her own (the agent's) evaluative standards when they fail to comply with them. In such cases external and internal criticisms coincide.
21. There are certain exceptions, which we will consider in due course.
22. Priest, *op. cit.*
23. See A. Tarski, "On the concept of logical consequence," in J. Corcoran (ed.),

choices as to which expressions we treat as semantically invariant and which we take to be open to reinterpretation. Russell argues that different conceptions about the nature of the constituents of arguments—i.e. whether we conceive of them as sentences, propositions, statements, etc.—induce different logics.[24] While these accounts certainly make for more interesting forms of pluralism, I nevertheless want to set them aside for present purposes. In what follows I assume that we are working with a fixed set of logical constants and a settled account of the nature of truth-bearers.

Wherein, then, does the disagreement between the monist and pluralist reside? The question of logical pluralism I am after can only be meaningfully raised against the background of the posit that there is, over and above questions of local applicability, a core or 'canonical' [25] application of logic. The pluralist maintains, and the monist disputes, that the core function of logic can be fulfilled by more than one logic. But what exactly does the canonical application of logic amount to? According to Priest, logic's central application is to deductive reasoning. It consists in determining 'what follows from what—what premises support what conclusion—and why' (idem). Philosophers may disagree over the nature of the core application.[26] Regardless of its nature, though, I assume here that there is such a core role for logic to play. A meaningful pluralist challenge amounts to the claim that at least two logics are equally suitable to play the core role.

The first candidate that fits the bill is what sometimes goes by the name of *meaning-variance pluralism*.[27] The label stems from the view's adopted strategy for deflating logical disputes: it is possible for Clare and Ira to both be right because the disputants attach different meanings to the terms involved. Meaning-variance can take multiple forms

depending on where the difference in meaning is located. Take the disputed claim that 'The argument form $\ulcorner \neg\neg A \therefore A \urcorner$ is (in)valid'. The semantic difference might be located in the meaning of 'valid', or in the meaning of the logical constants or in both.

Call meaning-variance pluralisms stemming from a difference in the meaning of 'valid' *structural* meaning-variance. A crude version of this view says that 'valid' in Clare's mouth really means 'valid-in-$\mathcal{C}$', whereas in Ira's mouth it means '*in*valid-in-$\mathcal{I}$'. But this misses the point. Of course, no one—classical or intuitionistic logician—has ever disputed *these* claims. The real question is which of the senses of 'valid' (if any) adequately captures *genuine* validity.[28]

A rather more sophisticated brand of structural meaning-variance has been advanced by B&R.[29] According to B&R's influential account, there *is* a core concept of validity, which can be characterized via a set of jointly sufficient and individually necessary conditions—necessary truth-preservation, formality and normativity—and via the so-called

Generalized Tarski Thesis: $\ulcorner \Gamma \therefore_{\mathcal{L}} A \urcorner$ is *valid*$_{\mathcal{L}}$ if and only if, in every *case*$_{\mathcal{L}}$ in which all of the members of Γ are true, so is A.

Pluralism arises from the fact that the core concept of validity can be elaborated in several equally legitimate ways depending on how we interpret 'case'.

B&R's structural meaning-variance features prominently in what follows. Yet, to complete the picture, let us briefly turn to the remaining two forms of meaning-variance. *Operational* meaning-variance locates the difference of meaning in (all or some of) the logical connectives.[30]

Logic, semantics, metamathematics, 2 edition (Indianapolis: Hackett, 1983) and A. Varzi, "On logical relativity," *Philosophical issues* 12 (2002).

24. G. Russell, "One true logic?," *Journal of philosophical logic* 37 (2008)

25. Priest, *op. cit.*, p. 196

26. See fn. 14 above.

27. Cf. O. Hjortland, "Logical pluralism, meaning-variance, and verbal disputes," *Australasian journal of philosophy* 91 (2013).

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28. One might retort that there is no genuine system-independent concept of validity; that all there is are system-immanent standards of validity. If this were true, we would again be left with a rather uninteresting form of pluralism, not to mention an implausible view of validity.

29. Beall and Restall, *op. cit.*

30. The terminology is inspired by Gentzen-Prawitz-style proof theory, in which inference rules are divided into those that feature specific logical operators (operational rules); and those that codify general constraints on the deducibility relation (structural rules).

On this view, Clare's claim might be understood as '$\neg_C \neg_C A \therefore A$ is valid', whereas Ira's equally correct claim might be read as '$\neg_I \neg_I A \therefore A$ is invalid'. Again, there is no disagreement except, perhaps, over the correct use of the logical connectives.[31]

Finally, on the third view—*hybrid* meaning-variance—the difference resides both in the meaning of 'valid' and in those of the logical operators. Some maintain that structural meaning-variance entails operational meaning-variance.[32] I find it difficult to adjudicate these claims absent a robust account of the meanings of the logical constants. As I am unaware of any such account, I do not pursue this issue further here.

So much for meaning-variance. Let us turn now to a different form of pluralism. Our assumption so far has been that there is what Field has called an 'all-purpose logic'.[33] The assumption enjoys a considerable pedigree. That logic applies unrestrictedly to any subject matter has, in one form or another, been taken to be a non-negotiable component of its job description by many. By contrast, advocates of *domain-relative pluralistm* dispute this characterization.[34] Inquiry, according to them, is irreparably compartmentalized, dividing into several distinct

and stable domains.[35] No single logic governs all domains. Rather, different domains call for different logics. And so a logic's normative authority is confined to its proper jurisdiction. We can continue to speak of the canonical application or core role of logic provided we allow for it to be relativized to domains.

Applied to the case of Clare and Ira, the domain-relative pluralist seeks to defuse the dispute by arguing that classical and intuitionistic logic do not compete for the same domain. The dispute is resolved by realizing that both logics have their legitimate domains of application. Of course, this relies on the assumption that the dispute is not domain-internal. And that assumption, it is worth emphasizing, is dubious. After all, the storied conflict between intuitionists and classical logicians has traditionally been a conflict over which of the two logics correctly codifies the standards of correct deductive reasoning in the domain of mathematics. Hence, even if we were to convert Clare and Ira to domain-relative pluralism and they were to agree, for instance, that classical logic governs macroscopic physical objects but that certain observational predicates obey intuitionistic logic, Clare and Ira would still not have made any progress in settling the pivotal question as to which logic to employ in mathematics.

Finally, let us turn to Field's version of logical pluralism. Field's point of the departure is his argument to the effect that 'validity' is not definable in terms of necessary truth-preservation. 'Validity' must be treated as a primitive. Grasping its meaning, however, requires an appreciation of its conceptual role, which, in turn, is characterized by the normative constraints validity imposes on our doxastic attitudes.[36] Field now couples his normative account of validity with his

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31. Operational meaning-variance only gives rise to pluralism on the assumption that the alternative meanings are equally legitimate. This is by no means obvious. For example, according to the semantic anti-realist tradition (M. Dummett, *The logical basis of metaphysics* (Cambridge: Harvard University Press, 1991), D. Prawitz, "Meaning and proofs: On the conflict between classical and intuitionistic logic," *Theoria* 43 (1977), N. Tennant, *Anti-realism and logic* (Oxford: Oxford University Press, 1987)) meaning-theoretic considerations reveal the classical meanings of the logical constants to be defective, thus favoring weaker constructive logics.

32. See for instance Priest, *op. cit.*.

33. H. Field, "What is the normative role of logic?," *Proceedings of the Aristotelian society* 83 (2009), p. 345.

34. O. Bueno and S. Shalkowski, "Modalism and Logical Pluralism," *Mind* 118 (2009)ăand N. da Costa, *Logique classique et non classique: Essaie sur le fondement de la logique* (Paris: Masson, 1997) fall into this category.

35. Domains are typically thought to be individuated by subject matter: think ethics, mathematics, micro-physics, etc. It is worth noting, though, that some phenomena, such as vagueness, cut across domains.

36. Field, *op. cit.*, Field, *op. cit.*, H. Field, "What is logical validity?," in C. Caret and O. Hjortland (eds.), *Foundations of logical consequence* (Oxford University Press, 2015).

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non-factualism about the normative.[37] There is, for him, no intelligible sense in which any one set of norms can be said to be uniquely correct.[38] Saying that there is no correct set of logical norms is not say that all logical norms are equally good—some can be better than others. This is because, as a species of epistemic norms, logical norms are selected with a view to promoting our epistemic goals. Logical norms can thus be assessed based on how effectively they achieve this objective. All the same, the picture points to two possible sources of logical pluralism: i) logical pluralism could be a result of pluralism about epistemic goals; ii) even if we agree on the epistemic goals we wish to further, it may be indeterminate which set of norms is most conducive to those goals. We have no reason to assume there to be a unique system that best optimizes for our often competing constraints.

Field's pluralism differs fundamentally from the pluralisms we have encountered so far: Field's pluralism makes room—while the other pluralisms do not—for the possibility of normative conflict.[39] On Field's view there may be multiple competing evaluative standards. It follows that Field's pluralist's does not necessarily fit the mould of the pluralist as a dissolver of logical disputes. On the other hand, Field's picture differs from the standard type of dispute exemplified by Clare and Ira, in that it denies the existence of objective evaluative standards.

This concludes our survey of pluralisms. Let us now marry our findings with those of the previous section by asking which of the normative assessments introduced there have a role to play within the various forms of pluralism. The following table summarizes our findings:

	(Objective)	(Subjective)	(Internal)
Structural MV			✓
Operational MV			✓
Domain-relative	✓-D	✓-D	✓
Non-factualism		✓	✓

By definition, pluralism does away with the notion of a unique correct logic. Consequently, none of our pluralisms allow for an objective bridge principle.[40] The only possible exception is domain-relative pluralism. The way we have portrayed the position it allows for objective, albeit *local* domain-specific bridge principles.[41] What about subjective bridge principles? If there is no correct logic, can I still legitimately take myself and others to be bound by an evaluative standard? Most pluralisms reject this possibility. After all, the point of the pluralist's intervention was to convince us of the futility of logical disputes. Subjective principles have no place within such pluralisms. As before, there are two exceptions. Domain-relative pluralists may countenance local, domain-internal disputes. Also, Field's non-factualism admits of conflicting subjective bridge principles. While there is no fact of the matter as to whether Clare or Ira is right, both may be within their rational rights to adopt and defend their logical policies. Finally, the only type

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37. H. Field, "Epistemology without metaphysics," *Philosophical studies* 143 (2009)

38. This is one of the respects in which Field's pluralism is closer to Carnapian tolerance Carnap, *op. cit.*: both authors explicitly reject the notion that logics can sensibly be called 'correct' or 'true'. If pluralism is narrowly defined as the position that there exist at least two correct logics, their views do not qualify. This goes to show that we should not construe 'logical pluralism' too narrowly.

39. See also T. Kouri Kissel, "Logical pluralism from a pragmatic perspective," *Australasian journal of philosophy* (Forthcoming) and N. Wyatt and G. Payette, "Logical pluralism and logical form," *Logique et analyse* 61 (2018).

40. When we introduced our objective principles, we were working under the provisional assumption of monism. In the present context of neutrality, one may therefore wonder if objective principles must be monist in nature. Consider the modest pluralism of someone who regards classical and intuitionistic logic as equally 'correct'. Instantiating the objective principles above, the likely consequence is, for instance, that one (objectively) may and that one may not infer A from $\neg\neg A$. I confess that I cannot make much sense of such a view (save in the case of epistemic value pluralism, which I discuss below).

41. One could equally imagine a non-factualist variant of the domain-relative pluralism—a hybrid between domain-relative pluralism and Field's non-factualism, if you will—which rejects even local correctness.

of normative assessment that has a place in all pluralist views are internal assessments. In endorsing a logic one commits oneself to the associated norms. Pluralists may allow for me to adopt different logics for different purposes or for particular domains of discourse, but this cannot mean that one gets to pick and choose among the principles of different available logics in the course of one's reasoning as one pleases. Were it permitted to do so, pluralism would collapse into monism with respect to the union of all of the parochial logics. Therefore, given that I operate with a logic within a specified context, I thereby take myself to be bound by the laws of that logic and so am subject to appropriate internal criticisms.

The upshot of these considerations is that meaning variance-based pluralisms are able to accommodate only a very thin, internal normative status. In the next section, I discuss whether this attenuated conception of logical normativity is viable.

4. The collapse argument

My main focus in the following is B&R's pluralism. As we just noted, on B&R's view, a given conception of consequence cannot normatively bind us in virtue of being correct or even by being taken to be so. As far as Clare and Ira's dispute is concerned, neither of their logical practices is susceptible to external criticism. The two have simply elected to play by different, albeit equally acceptable rules. We are left only with a purely system-immanent notion of correctness.

This observation points to a difficulty for B&R's view. Logical norms do not seem to bind us merely in the way that the rules of a game bind us. I take myself to be answerable to the rules of chess only so long as I wish to play chess. Logic, by contrast, is not a game I can choose not to play. Assuming logic is normative for reasoning, its role in our epistemic lives is indispensable. The principles of logic, unlike the rules of a game, are answerable to an external standard, to wit, our broader epistemic aims. Consequently, they must be coordinated with our non-logical epistemic norms.[42]

This, I submit, is the normative source of the so-called 'collapse argument' against B&R's pluralism.[43] The argument, in summary, is this. Suppose that A is known to be true and that B is a (relevant) proposition. Let $\mathcal{L}_1$ and $\mathcal{L}_2$ be two distinct admissible logics such that $\models_{\mathcal{L}_2} \subsetneq \models_{\mathcal{L}_1}$. In particular, suppose that $A \models_{\mathcal{L}_1} B$, but $A \not\models_{\mathcal{L}_2} B$. Do we have logical grounds for believing B? We clearly do on B&R's account. We need not worry that $\mathcal{L}_1$ might lead us astray. After all, $\mathcal{L}_1$ is admissible and so truth-preserving. But if so, the conclusion seems irresistible that, in view of my epistemic aims, I ought to choose an $\mathcal{L}_1$-based bridge principle over the $\mathcal{L}_2$-based principle, lest I pass up the opportunity to come to know B. $\mathcal{L}_1$, as we might put it, normatively dominates $\mathcal{L}_2$. And so one bridge principle—the one featuring the stronger of the two logics—imposes itself, giving rise to the following objective evaluative principle:[44]

(BP-$\models_{\mathcal{L}_1}$ -) If $\models_{\mathcal{L}_2} \subseteq \models_{\mathcal{L}_1}$, and $A_1, \ldots A_n \models_{\mathcal{L}_1} C$, then S ought not (believe the A_i and disbelieve C).

This suggests that once we factor in our wider epistemic goals, B&R's central claim to the effect that both logics (and their attendant norms) are equally permissible, is false. Notice that the argument does not rely on particularly contentious assumptions about one's epistemic value theory. It merely assumes that, all things being equal, a logic

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42. While B&R list normativity among their three admissibility criteria Beall and Restall, *op. cit.*, §2.4, they fail to take the wider epistemic significance of logical normativity into account. Left merely with the internal normative dimension, it is hard to see what work the normativity criterion is doing for them. After all, any consequence relation can trivially be regarded as setting forth norms for anyone who endorses it.

43. See Priest, *op. cit.*, Priest, *op. cit.*, Read, *op. cit.*, Keefe, *op. cit.*, and C. Caret, "The collapse of logical pluralism has been greatly exaggerated," *Erkenntnis* 82 (2017).

44. For simplicity, I present only the variants of our go-to example (Objective Omissive -).

that licences more inferences to potentially epistemically valuable con-clusions is to be preferred.

Our conclusion straightforwardly generalizes. Where we are con-fronted with various admissible logics that are totally ordered in terms of strength, we simply pick the strongest of the bunch.[45] In cases where the admissible logics are not totally ordered, the lesson that we ought to exploit our logical resources still applies. In the simplest case where we have two admissible logics, $\mathcal{L}_1$ and $\mathcal{L}_2$, that are incomparable with respect to inclusion (as, for example, in the case of intuitionistic logic and a standard system of relevant logic), the apposite principle would seem to be:

(BP-($\models_{\mathcal{L}_1} \vee \models_{\mathcal{L}_2}$)) If $A_1, \ldots A_n \models_{\mathcal{L}_1} C$ or $A_1, \ldots A_n \models_{\mathcal{L}_2} C$, then S ought not (believe the A_i and not believe C).

Generalizing beyond the case of two logics, we arrive at the following:

(BP-$\cup \models_{\mathcal{L}_i}$) If there exists an admissible $\mathcal{L}_i$, such that $A_1, \ldots A_n \models_{\mathcal{L}_i} C$, then S ought not (believe the A_i and not believe C).[46]

The upshot of these reflections is that B&R's pluralism is vulnerable to a kind of *upward* collapse. Once our broader epistemic commit-ments are duly taken into account, it looks as if we ought to adopt the strongest available consequence relation among our admissible log-ics.[47] We thus find ourselves bereft of any rationale for endorsing a weaker logic.

How might B&R respond to the collapse worry? B&R are advocates of negative bridge principles: 'if an argument is valid,' they write, 'then

you somehow go *wrong* if you accept the premises but reject the conclu-sion'.[48] The collapse argument is driven by the fact that in opting for a weaker logic one forgoes the opportunity to acquire an epistemically valuable belief. Perhaps, though, it is a mistake to construe the norma-tivity of logic as issuing obligations to believe—even wide-scope ones. B&R's favored negative bridge principles are mere safeguards of log-ical coherence: I can comply with the bridge principle, simply by not bearing any kind of attitude at all towards the conclusion of a valid ar-gument, just so long as I do not 'actively' disbelieve it (while believing the premises). However, this response is of little help to the pluralist, even if negative principles were to win the day. For even according to our negative principle the weaker logic $\mathcal{L}_2$ fares worse epistemically than $\mathcal{L}_1$: plainly, $\mathcal{L}_2$ permits disbelieving true propositions (and $\mathcal{L}_1$-consequences) such as B.[49]

Colin Caret has proposed a different response on behalf of B&R.[50] Following Hjortland and Shapiro, Caret proposes to interpret B&R's version of meaning-variance as a form of contextualism about the meaning of the validity predicate.[51] The predicate's meaning must be understood relative to a contextually determined standard of logical strictness. Certain types of cases (incomplete ones, inconsistent ones, etc.) will be live options in some contexts, thus raising the strictness bar by requiring us to consider a larger class of cases; other contexts will impose laxer standards allowing us to disregard certain cases thus

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45. As before, I am assuming that logics are ordered by inclusion over their consequence relations.
46. A word of caution is in order here. The taking of unions of consequence relations may result in a trivial system. An example is given by Abelian and classical propositional logic Read, *op. cit.*: in Abelian logic we have $\neg A, B \models_{\mathcal{A}} ((A \rightarrow B) \rightarrow B) \rightarrow A$, whereas classical logic yields $\neg A, B \models_{\mathcal{C}} \neg(((A \rightarrow B) \rightarrow B) \rightarrow A)$.
47. Cf. Keefe, *op. cit.*.
48. Beall and Restall, *op. cit.*, p.16.
49. What is more, as MacFarlane, *op. cit.* remarks, negative principles seem too weak, at least on their own. Take, for instance, the case of the aforementioned (Subjective Omissive -). Suppose my colleague refutes the claim $A \wedge B$. She rightly points out that I have previously professed belief in both A and B, though separately. Intuitively, I am under rational pressure to abandon at least one of my beliefs. But the negative principle does not account for that pressure. Instead it affords me a dubious loophole: my endorsing A and B merely pro-vides me with an obligation *not to disbelieve $A \wedge B$*. Surely, though, the situation demands more of me. It demands that I own up to my doxastic commitment towards $A \wedge B$.
50. Caret, *op. cit.*
51. See Hjortland, *op. cit.* and S. Shapiro, *Varieties of logic* (Oxford: Oxford Uni-versity Press, 2014).

leaving room for 'more' logical implications. Since strict contexts mandate weaker logics, contextualism appears to stave off the threat of collapse by providing the previously lacking rationale for espousing a weaker logic.

Caret's idea is elegant, but not ultimately convincing in my view. For one, the notion of a variable standard of logical strictness lacks motivation. Caret models his proposal after epistemic contextualism, according to (a version of) which, 'knows' is to be interpreted relative to a contextual parameter expressing an epistemic standard. Different contexts call for different standards, thus altering the extension of 'knows' accordingly. Wherever one ultimately stands on the viability of epistemic contextualism, it is hard to deny that the position enjoys at least a *prima facie* intuitive pull. The same cannot be said for Caret's proposal. I see no good reason for thinking that our validity judgments are in fact sensitive to a strictness parameter, nor, for that matter, that they should be. We simply do not ordinarily recognize contexts that select for different stricter or laxer logical standards and so for weaker and stronger logics. To be sure, we may at times 'try on' different logics as a possible way of resolving a paradox (as in Caret's example of the liar (idem)) or to accommodate persistently recalcitrant data. But such cases are more readily thought of as instances of suppositional reasoning. In much the same way in which I might posit the truth of certain propositions to explore their consequences in the course of theoretical deliberation, I might posit the validity or invalidity of a principle of logic in order to weigh the costs and benefits of each of my options, e.g. 'Ought I to restrict the truth-predicate or should I revise my logic in order to account for semantic paradoxes?'[52] But engaging in deliberation of this kind does not commit me to logical pluralism, nor is there any need to wheel in contextualist machinery to make sense of it.

Let us turn now to the final response. The collapse argument makes certain assumptions about the role of logic in our epistemic lives and about the epistemic ends we pursue. These assumptions are sufficiently weak to be compatible with a wide variety of epistemic value theories. It might, however, be said to rely on the tacit assumption of epistemic monism in that it presumed there to be but one fundamental epistemic value (e.g. truth or knowledge). Perhaps, then, the absent motive for logical pluralism resides in pluralism about epistemic value. Weaker logics impose constraints beyond mere truth-preservation on the notion of logical consequence. Perhaps some of these constraints can be motivated by appeal to alternative epistemic values? Perhaps so. But even if value pluralism is correct, we are still owed a story as to what these values are and how the candidate logics might promote or respect these values. As things stand, it is hard to make out even the contours of such an account. Certainly, it is unclear how these logics might relate to the types of values often invoked such as understanding or wisdom.

5. Domain-relative pluralism

Let us then consider a different strategy for dodging the collapse worry. Since this strategy amounts to a more radical departure from B&R's pluralism, it merits separate treatment. The strategy consists in parrying the collapse argument by espousing domain-relative pluralism.[53] Domain-relative pluralism, recall, is the view that different domains of discourse select different logics. The domain-relativist's response to the collapse argument is simple: while the stronger logic in the example above may be appropriate for some domains, some domains may not support all of its implications and so may require a weaker logic. The

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52. Peter P. Schroeder-Heister, "A natural extension of natural deduction," *Journal of symbolic logic* 49 (1984) proposes a natural deduction calculus that allows for the introduction of dischargeable deductive rules in the context of suppositions, which can be thought of as a proof-theoretic representation of such logical suppositions.

53. B&R are unequivocal in their rejection of domain-relative pluralism, see Beall and Restall, *op. cit.*, p. 88.

threat of collapse is thus blocked by compartmentalizing our logics' domains of application.

Domain-relative pluralism raises an important question well known in the literature on alethic pluralism as the *problem of mixed compounds*. Adapted to our present concerns, the question can be put thus: What are we to make of logically complex propositions the atomic parts of which pertain to domains governed by distinct logics? And what are we to make of inferences involving premises pertaining to domains governed by distinct logics? Far from being a niche phenomenon, cross-domain reasoning is commonplace and of central importance to our intellectual pursuits. The mathematical, the physical, the ethical, the legal, the aesthetic and so on are frequently intermingled in our attempts to make sense of the world. Domain-relative pluralists must therefore be able to account for propositions and inferences that straddle muliple domains.

How might the pluralist approach this challenge? To keep things simple, consider a toy example involving just two domains: that of mathematics, D_M, and that of macro-physics, D_P. In keeping with our story line, let us assume that our pluralist endorses intuitionistic logic within the mathematical domain and classical logic within the physical domain. Now let A be a mathematical proposition and B a physical proposition, both true in their respective domains. Given these assumptions, the question is this: What are we to make of $A \star B$, where $\star$ is a logical connective? There are three possibilities:

- Treat $A \star B$ as if it belonged to D_M;
- Treat $A \star B$ as if it belonged to D_P;
- Treat $A \star B$ as belonging to $D_M \bullet D_P$,

where $D_M \bullet D_P$ is a status that functionally depends on D_M and D_P but is distinct from both.

Nikolaj Pedersen and Cory Wright, in their structurally analogous discussion of alethic pluralism, go in for the first option.[54] It will be

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54. See N. J. L. L. Pedersen and C.D. Wright, "Pluralist theories of truth," in

helpful to introduce some terminology. Let us again assume a partial ordering, $\leq$, by inclusion over our logics. Let us say that, for any proposition P, $\lambda(P)$ is the logic governing P in virtue of the domain to which P pertains. In our example, we have $\lambda(A) = \mathcal{I}$ and $\lambda(B) = \mathcal{C}$ and thus $\lambda(A) \leq \lambda(B)$. Following a standard move in algebraic semantics, Pederson and Wright now treat conjunction and disjunction as 'minimizing' and 'maximizing' operations respectively. In our context this amounts to:

$$\lambda(A \wedge B) = min(\lambda(A), \lambda(B))$$
$$\lambda(A \vee B) = max(\lambda(A), \lambda(B))$$

But this cannot be quite right as the following simple argument reveals. Suppose I prove $\neg\neg C$, for some $C \in D_M$, where C is not effectively decidable. Because D_M is governed by intuitionistic logic, I am not permitted to infer C. However, if the proposal were correct, I would have a ready-made strategy for circumventing these intuitionistic strictures. Simply disjoin the conclusion with a random physical falsehood, P, yielding $\neg\neg C \vee P$. But $\neg\neg C \vee P$ is subject to classical logic and so is equivalent to $C \vee P$. And since we know that $\neg P$, an application of disjunctive syllogism yields the purely mathematical C. Nothing hangs

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E. Zalta (ed.), *Stanford encyclodedia of philosophy* (2013), §4.5.2. The objection to follow does not necessarily apply to them. It does, however, carry over if the different truth-properties associated with the two domains were to induce different logics. While alethic pluralism certainly does not entail logical pluralism, the former does naturally entrain the latter given certain assumptions, see M. Lynch, *Truth as one and many* (Oxford: Oxford University Press, 2009), p. 95–96 and N. J. L. L. Pedersen, "Pluralism x 3: Truth, logic, metaphysics," *Erkenntnis* 79 (2014) himself. Going in the opposite direction, S. Read, "Review of J.C. Beall and G. Restall, *Logical pluralism*, Clarendon Press, 2006," *Notre Dame philosophical reviews* (2006) argues that B&R would do well to endorse alethic pluralism. It should be emphasized, though, that B&R reject alethic pluralism (p. 100).

on the specifics of my example. The same (or analogous) arguments can be generated for similar cases.

To avoid such difficulties a retreat to what Lynch has called 'logical modesty' recommends itself:

> **Logical modesty:** Where a compound proposition or inference contains propositions from distinct domains, the default governing logic is that of the compound or inference's weakest member.[55]

Logical modesty is a plausible stance. However, as it stands it presupposes the comparability of all logics involved, which, we said, is not always possible. For instance, we have $\models_{\mathcal{I}} \not\subseteq \models_{\mathcal{R}}$ and $\models_{\mathcal{R}} \not\subseteq \models_{\mathcal{I}}$ (where $\mathcal{I}$ is intuitionistic logic and $\mathcal{R}$ the system of relevant implication.) How to proceed? In analogy with our development of the collapse argument in the previous section where we took the union of the relevant consequence relations, the natural move here is instead to take the intersection of the logics in question. This is in the spirit of logical modesty: When engaging in cross-domain reasoning, we should draw only on principles sanctioned by *all* the relevant logics. We thus arrive at the following

- (BP-∩ $\models_{\mathcal{L}_i}$) If for all $\mathcal{L}_i$, $A \models_{\mathcal{L}_i} C$, then S ought not (believe A and disbelieve C).

Thus, whereas the collapse argument results in an *upward* collapse into monism, domain-relative pluralism gives rise to a *downward* collapse. The direction of the collapse is determined by whether the admissible logics are reliable or not. In the context of B&R's pluralism all logics in question are admissible and so necessarily truth-preserving. In the present case, different logics can be reliably applied only in their appropriate domains. Misapplying a stronger logic in a 'weaker' domain may lead us from truth to falsity.

The question now is whether the downward collapse of domain-relative pluralism when it comes to cross-domain discourse also

amounts to an all-out collapse into *monism*? I turn to this question in the next section.

6. Duck-rabbit pluralism

It will not have escaped the attentive reader's attention that Clare and Ira have been absent throughout our discussion of pluralism.[56] Happily, they are making a reappearance in our present discussion. It is important to bear in mind for the upcoming act that, their obvious differences of opinion notwithstanding, Clare and Ira's philosophies of logic are largely aligned. In particular, both are staunch monists.

Let us focus on Ira. Ira, as we know, rejects classical logic in favor of intuitionistic logic. She does so because she maintains that characteristically classical principles lack universal validity and so cannot form part of the correct logic. Intuitionistic principles, by contrast, do hold without fail in all domains according to her. Ira's view does not prevent her from calling upon classical principles when reasoning in circumstances in which she thinks they do hold. However, in so doing she accords classical principles the status of domain-specific *non-logical* principles of inference, much in the way in which one might legitimately appeal to the principle that the whole is greater than its proper parts outside of infinitary set theory.[57]

In a dramatic twist, a third character steps on the scene: Dora. Dora agrees with Ira both *that* intuitionistic restrictions of classical logic are warranted and *where* these are warranted. The twist, though, is that Dora is a domain-relative pluralist. Where for Ira a logical principle's membership in the correct logic and its universal validity are necessarily linked, Dora's position is that the two may come apart. That is, where Ira views local failures of validity as decisive demonstrations that classical principles have no place in the correct logic, Dora does

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55. Lynch, *op. cit.*, p. 100.

56. I am borrowing the phrase 'duck-rabbit' pluralism from Priest, *op. cit.*.
57. I set aside recent accounts of infinite sets that preserve the part-whole principle. See P. Mancosu, "Measuring the size of infinite collections of natural numbers: Was Cantor's theory of infinite number inevitable?," *The review of symbolic logic* 2 (2009) for discussion.

treat classical principles as genuinely valid, albeit only within the confines of their rightful domain.

Hence, while Ira and Dora deploy the same principles in the same contexts, the difference between their views stems from their conflicting verdicts regarding the logical status of classical principles. For example, both condone the use of DNE when reasoning about decidable domains. However, Dora treats the principle as a logical validity *relative to the appropriate domains*, whereas Ira insists on treating it as non-logical because merely domain-specific. The two are thus in complete agreement with respect to the norms of reasoning to which they hold themselves. They disagree only in that Dora uses 'valid', 'logical' and their cognates more liberally, while Ira reserves these honorifics for principles she takes to be universally applicable. Viewed in this way, the conflict between the monist and the domain-relative pluralist seems to come down to a mere semantic squabble. After all, what substantive questions could possibly hang on our being more or less liberal in our application of 'valid' and 'logical principle'?[58]

One might be tempted to point to the fact that Ira's stricter interpretation has the longstanding tradition of treating its *formality* or 'lack of subject matter' as partially definitive of logic on its side.[59] What characterizes logic as a discipline (at least in part), on this view, is its unrestricted applicability. But these considerations are of little succor to Ira. After all, we already knew that Ira does, while Dora does not, build universal applicability into her conception of logicality. The question is whether there are good reasons for doing so. And the trouble is that accounts of logicality in this tradition do not deliver on reasons. Logic's universality, rather, is posited as an unexplained explainer.

A *prima facie* more promising objection has been levelled at the monist.[60] By virtue of her uncompromising conception of logicality,

the monist effectively adopts a position of logical modesty with respect to all discourse (not merely for cross-domain discourse). According to her, the only *bona fide* laws of logic are those that hold good in all domains. But here's the rub: scarcely any logical principle has gone unchallenged in one context or another. Hence, if for sufficiently many domains our best overall theory requires weakening our logic, the monist runs the risk of finding herself with an unworkably weak or even empty consequence relation. Call this the *Objection From the Threat of Logical Nihilism*.

The threat of nihilism also seems to show Dora to be in an advantageous position when making potentially logic-altering theoretical decisions. For let us suppose our best theory of a given domain is faced with persistent recalcitrant data. Let us assume, moreover, that we could accommodate the data by either revising the theory in question or by locally abandoning certain logical laws. How would Ira and Dora approach this theoretical choice? Ira, the monist, would seem to have a very strong incentive not to tinker with her logic lest she ends up with a cripplingly weak all-purpose logic. These global theoretical considerations thus impose stiff constraints on Ira's local theoretical choices. Dora, by contrast, appears to enjoy a great deal more flexibility, which would appear to be an asset.

But this picture is misleading. The trouble is that it overlooks the insights from our discussion of the downward collapse problem. For when it comes to cross-domain discourse, the pluralist and the monist are in the same boat: both are equally committed to logical modesty when several domains are involved. In such cases both must make do with the principles that hold in all the relevant domains. It follows that, local logical revision in response to theoretical pressures are likely to come at a heavy cost also for the pluralist. Ira and Dora are thus both subject to a standing *pro tanto* injunction in favor of logical conservativeness.

True, the pluralist's and and monist's dialectical situations are not identical: while the monist is *always* committed to a core logic applicable across all domains, the pluralist must resort to logical modesty only

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58. This discussion draws in part on Priest, *op. cit.*, p. 203
59. J. MacFarlane, *What does it mean to say that logic is formal?* (Ph. D. diss.), Pittsburgh: University of Pittsburgh, 2000
60. B&R themselves advance this argument. See Beall and Restall, *op. cit.*, p. 93. See also Bueno and Shalkowski, *op. cit.*.

in 'worst-case' scenarios involving particular restrictive cross-domain discourse. But the force of this response is significantly mitigated by the following two considerations. First, recall that the monist too can augment her core logic by introducing domain-specific (non-logical principles) where appropriate. As we have seen in the case of Ira and Dora, both the monist and domain-relative pluralist have access to the same principles. Simply, Ira is more sparing in which of the principles she considers genuinely logical. Second, cross-domain discourse, far from being a fringe phenomenon, is crucial to our intellectual pursuits. As Lynch aptly puts it

> reason, by its nature, is universal in its scope—it allows us to combine propositions from different domains into more complex propositions, and to make inferences across different subjects—as when we draw moral conclusions from partly non-moral premises.[61]

In short, the threat of nihilism (or at least the threat of an impractically weak logic) afflicts both the domain-relative pluralist and the monist to a significant degree. It is not clear, to say the least, that this tips the balance in the pluralist's favor.

Is there anything, then, that could convince us that Ira and Dora are embroiled in more than a terminological tangle? One option would be for Ira to show that there is more to (what she calls) *genuine* logical principles than universal validity—some distinctive property that would set properly logical principles apart from merely domain-specific principles. Different types of accounts are conceivable: genuine logicality might manifest itself by way of distinct metaphysical property or perhaps via a distinctive normative profile. I explore neither of these options here. If either could be shown to stick, this would demonstrate the illegitimacy of the domain-relativist's description of the situation. But even in the absence of such a demonstration, our discussion has shown that domain-relative pluralism amounts to nothing more than a

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61. Lynch, *op. cit.*, p. 86

re-description of monism. We have found no good reason for choosing the pluralist duck over the monist rabbit.

7. Conclusion

Here is what we have established. We have analysed the normative structure of logical disputes and we have provided a classification of logical pluralist views in accordance with their strategy for resolving such disputes. Among the forms of pluralism that offered such a strategy at all, we distinguished meaning-variance pluralisms and (certain) domain-relative pluralisms. The former leave no room for external assessments, the latter allow for external assessments when it comes to disputes about a particular domain. I argued that both types of pluralism (or at least the viable representatives thereof) ultimately collapse into monism. Consequently, the only forms of genuine logical pluralism compatible with the normativity of logic are ones that allow for logical disputes. More succinctly put: if logic is normative, competition between logics may be inevitable.

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