

Is Logic a Normative Discipline?

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I

Is logic a normative discipline?

Frege thought so. In his unpublished 1897 manuscript “Logic,” he writes:

Like ethics, logic can also be called a normative science. How must I think in order to reach the goal, truth? We expect logic to give us the answer to this question, but we do not demand of it that it should go into what is peculiar to each branch of knowledge and its subject-matter. On the contrary, the task we assign logic is only that of saying what holds with the utmost generality for all thinking, whatever its subject-matter. (Frege 1979, 128)

Frege appeals to this normative characterization of logic in several of his informal arguments for logicism, urging that arithmetic, too, provides normative constraints for thought in general, and that it must therefore have a basis in logic, not, as Kant thought, in the form of sensible intuition. As I have argued elsewhere (MacFarlane 2002), this normative characterization of the generality of logic is the only one available to Frege, who thinks that logic has its own special objects, and concepts that distinguish these objects from others.

However, it is difficult to square Frege’s claim that logic can be thought of as a normative science with his conception of logic as a body of truths. In his essay

“Thoughts,” Frege says:

The word ‘law’ is used in two senses. When we speak of moral or civil laws we mean prescriptions, which ought to be obeyed but with which actual occurrences are not always in conformity. Laws of nature are general features of what happens in nature, and occurrences in nature are always in accordance with them. *It is rather in this sense that I speak of laws of truth* [i.e., laws of logic]. Here of course it is not a matter of what happens but of what is. (Frege 1984, 58)

That sounds like the claim that logic is a descriptive science, not a normative one. But Frege immediately adds that rules for thinking, judging, and inferring “follow from” these laws of truth. How so? As he explains in the Preface to the *Grundgesetze*:

Any law asserting what is, can be conceived as prescribing that one ought to think in conformity with it, and is thus in that sense a law of thought. (Frege 1964, xv)

Thus, for example, the logical claim that every object is identical with itself can be conceived as prescribing:

(1) Don’t judge, of anything, that it is not identical to itself!

However, this prescription is, in an important sense, derivative, not fundamental. The fundamental normative principle is one relating judgment to truth:

(2) Don’t judge what isn’t true!

The reason that we shouldn’t judge that an object is not identical to itself is that, every object being identical with itself, such a judgment could not be true. Thus (1) follows from (2) (which is not itself part of logic) together with a purely descriptive claim of logic.

Let’s say that

(3) A discipline is **normative in the weak sense** iff, from the principles of the discipline plus some true normative claims, one can derive explicitly prescriptive or evaluative claims.

As far as we’ve seen so far, Frege is only entitled to hold that logic is a normative discipline in this weak sense. In this sense, though, *every* science is a normative discipline—as Frege immediately goes on to concede:

This holds for laws of geometry and physics no less than for laws of logic. The latter have a special title to the name ‘laws of thought’ only if we mean to assert that they are the most general laws, which prescribe universally the way in which one ought to think if one is to think at all. (Frege 1964, xv)

For example, from the truths of biology, plus the true normative principle

(4) One ought to take care in handling poisonous snakes,

one can derive the normative claim

(5) One ought to take care in handling rattlesnakes.

So even biology is also normative in the weak sense.

II

If the claim that logic is normative is to be interesting, it must amount to more than this. One stronger sense would be the following:

(6) A discipline is **normative in the strong sense** iff some of its fundamental principles are explicitly normative or evaluative, or are reducible to explicitly normative or evaluative terms.

It would seem hard to maintain, nowadays, that logic is normative in the strong sense. If one looks at logic books or journals, one will not find normative vocabulary in the definitions, theorems, or proofs. A typical logic book might start by defining validity as truth preservation in every model, provability as the existence of a sequence of formulas satisfying certain conditions, and so on. The book might then go on to prove various things about these notions, including which inferences are valid, how validity relates to provability, and so on. All of these claims, about validity and provability as defined in the book, are non-normative. Indeed, they are claims of pure mathematics, and one evaluates them the way one evaluates mathematics—not by making normative judgments. Viewed in this way, logic seems straightforwardly descriptive.

However, this quick dismissal of the normativity of logic might be a little too quick. Let’s grant that the logic book is, essentially, a work of pure mathematics. Still, what makes the book a *logic* book (as opposed to, say, a geometry book) is that the

technical mathematical concept it is studying—let us call it Q-validity—is one that deserves the label “validity.” So we might think of the content of the logical theory as an amalgam of two things:

a) some purely mathematical principles defining and characterizing Q-validity, and

b) a non-mathematical principle like

(7) Q-validity is validity

or perhaps (if we are feeling pluralist)

(8) Q-validity is a kind of validity.

At any rate, this is consistent with our practices in evaluating works as works of logic. A beautiful contribution to, say, algebraic geometry won't get published in *Oxford Studies in Logic* just because the author uses the word “validity” for one of the central definitions. It has to be plausible that the theory makes claims about *validity*, where *validity* is not just a synonym for the mathematical concept used in the body of the book.

Moreover, it is only if we think of logical theories in this more expansive way—as incorporating claims like (7) or (8)—that we can see different logical theories as disagreeing with each other. The classical logician can accept the intuitionist's claims about which inferences are intuitionistically valid, and the intuitionist can accept the classicist's claims about which inferences are classically valid; if they disagree, it can only be about the question whether intuitionistic validity or classical validity corresponds to real validity.

So, at least some of the claims of a logical theory will be stated using concepts, like *validity*, that are not just internal to the theory, and on which we have some independent grasp. This is the point where some philosophers begin to talk about a “pretheoretical notion of validity,” but I would like to avoid that. I doubt that we have any pre-theoretical grasp of validity, or any related notions (being logically consistent, following logically from, being logically independent). Consider the difficulties one faces in getting these notions across to undergraduates in their first exposure to logic. They must learn that a valid argument can have false, even absurd premises; that enthymemes that depend on unstated but obviously true premises are invalid; that adding additional premises, even when they are inconsistent with the conclusion, does not spoil deductive validity; that an argument can be invalid even

if the the premises provide extremely good evidence for the conclusion. None of this is intuitive or pretheoretical: the concept of deductive validity must be learned.

Moreover, our usual ways of getting the concept across are heavily theory-laden, often taking sides in philosophical debates. For example, we might tell students that to call an argument valid is to say that it is impossible for the premises to be true without the conclusion being true. But this is a characterization some theorists might reject—for example, those who think that validity requires relevance in addition to truth preservation,¹ those who deny that validity should be characterized in modal terms, those who think that validity must be characterized in terms of provability, and those (like Hartry Field) who deny that truth preservation is even a necessary condition for validity.

Even if we accept the modal characterization, it would have to be precisified considerably in order to fix the concept. What kind of necessity is at stake here? If the answer is “logical necessity,” then that is another technical concept that needs explaining (Field 2015, 4). In addition, it is usually required that valid arguments preserve truth “in virtue of their form”—but what, exactly, does this come to? Each precisification requires taking a stand on a controversial issue in the philosophy of logic. Still more precisifications are required when we extend our notion of validity to new frameworks—logics of indexicals, for example, or supervaluations, or multivalued logics. Does validity require preservation at truth at a context, or at a point of evaluation (context, world, and time)? Preservation of truth at a valuation, or preservation of truth at all valuations? Preservation of truth, of non-falsity, or of both?

It seems to me, then, that although we have use for a notion of logical validity that goes beyond the mathematical definitions of validity we operate with in metalogic, this is hardly an “intuitive” or “pretheoretical” notion. Our grasp of it is a product of our logical educations, and our understandings of it differ in substantive ways. Nonetheless, in fundamental logical disputes we think of ourselves as making competing claims about the same thing. I’ll call this *intertheoretical validity*. And, while I’m sympathetic to the pluralist idea that there may be multiple useful notions of intertheoretic validity, I’ll put that to the side for now and speak as if there is just one. I do not think that what I have to say depends on the assumption of monism, but making this assumption will reduce verbiage.

To hold that logic is normative in the strong sense, then, is to hold that intertheoretic

¹Though see Read (2003).

validity can be *analyzed* in terms of normative or evaluative notions, so that statements about validity can be reduced to normative or evaluative statements.

III

Several authors in the recent literature, most prominently Hartry Field, have taken a “normative turn,” arguing that we can get clearer about what is at stake in debates about intertheoretic validity if we think about the *normative* stakes of those debates (MacFarlane, n.d.; Restall 2005; Field 2009b ; Field 2009a; Field 2015). What motivates this normative turn is a sense that it is often not clear what is at issue in cases of fundamental logical disagreement. The informal glosses we tend to give on intertheoretic validity are too vague, and often not commonly enough shared, to give substance to the disputes. We can often get to the bottom of a dispute by asking why it matters how the dispute is resolved. When the dispute concerns the validity of an inference—say, the inference from $\neg\neg P$ to P —then the answer, shared by both parties, might be something like this: If the inference is valid, then there is something *wrong* with accepting the premise and refusing to accept the conclusion. The dispute then bottoms out in a normative dispute: the classicist thinks it is wrong to accept $\neg\neg P$ without accepting P , while the intuitionist thinks it isn’t.

The most obvious way to make the normative turn would be to *analyze* intertheoretic validity in normative terms, perhaps in something like the following way:

- (9) An inference form is *valid* just in case, for every instance with premises $P_1 \dots P_n$ and conclusion Q , one ought not believe $P_1 \dots P_n$ without fully believing Q .

Such an analysis would vindicate the claim that logic, conceived as making claims about intertheoretic validity, is normative in the strong sense, as defined by (6), above. It would allow claims about validity to be *reduced* to normative claims. However, all of the authors I mentioned seem to shy away from a normative *analysis* of validity, and so all of them stop short of what would be needed for the claim that logic is normative in the strong sense. I want to ask why.

I can think of two grounds for declining to offer a normative conceptual analysis of validity. The first is that one might not know how to give a plausible normative necessary *and* sufficient condition for an argument to be valid. One might have

only, say, a necessary condition. If this were one's reason for declining to give an analysis, one might fall back on a *partial analysis* or partial definition: a normative necessary condition for validity that one presents not just as a truth about validity, but as something constitutive of the concept. This would be still be enough to vindicate an interesting sense in which logic is normative:

- (10) A discipline is **normative in the conceptual sense** iff some of its fundamental concepts can only be understood in terms of their relation to normative concepts.

Biology is not normative in the conceptual sense—at least, (5) does not show that it is. Although calling things poisonous does have normative implications, it is not necessary to grasp these implications in order to understand the concept *poisonous*. But, if intertheoretic validity must be understood, in part, in terms of its relations to normative constraints, that is enough for an interesting and nontrivial sense in which logic might be said to be a normative discipline, despite the fact that its claims cannot be *reduced* to normative claims.²

The second ground for declining to give a conceptual analysis would be general skepticism about conceptual analyses. The points are familiar. If anything is a conceptual truth about conditionals, it is that modus ponens is valid for them. Yet Vann McGee, an expert on conditionals, rejects this. It seems unattractive to say that the disputes between McGee and supporters of modus ponens are merely verbal, but that is what we would have to say if we took modus ponens to be constitutive of the concept of the conditional (Williamson 2003). We would now reject many of the principles Niels Bohr would have taken to be definitive of electrons, but in rejecting them, we seem to be disagreeing with him substantively and not merely verbally (Putnam 1988). Turning to the case of validity, it seems reasonable to

²One small hiccup: if Field is right that objective chance is to be understood in terms of its relation to norms for subjective credence, and if quantum physics is interpreted (as it often is) as making claims about objective chance, then *physics* counts as a normative discipline in the conceptual sense. This result might make us doubt the interest of this category. But let's recall that it's a matter of some controversy whether we need a *primitive* notion of objective chance to understand quantum mechanics. For example, David Deutsch, David Wallace, Wayne Myrvold and Hilary Greaves have tried to give a decision-theoretic justification for why agents should conform their beliefs of beliefs in various outcomes to the "branch weights" quantum theory assigns to these outcomes (see Greaves 2007; Wallace 2014). Such an account, if successful, would render unnecessary any primitive conceptual connection between the probability-like values in quantum physics and subjective credences, and would save physics from being a normative discipline in the conceptual sense.

doubt that there is any particular principle that one could not, in principle, reject without “changing the subject.” That is, one might reject a distinction between “substantive” and “conceptual” truths about validity. This would mean resisting even a *partial* analysis, and would leave us with only the weak sense in which logic is normative.

Interestingly, this second ground does not seem to be Field’s reason for rejecting a normative definition of validity. He treats the condition

(VB)ⁿ If an argument is valid, then we shouldn’t fully believe the premises without fully believing the conclusion.

as a partial analysis, not just a “plain truth” about validity. At any rate, he calls the connection to cognitive norms “a very important feature of the normal *meaning* of ‘implies’” (Field 2009a, 349, emphasis added), and he gives the following “attitudinal” gloss:

(VB)^a To regard an inference or argument as valid is (in large part anyway) to accept a constraint on belief: one that prohibits fully believing its premises without fully believing its conclusion.

We must be intended to take the normative connection spelled out in (VB)ⁿ as part of the concept of validity; for, if it were a substantive truth, one could think an argument valid without adopting this normative attitude. In addition, Field says that someone who rejects (VB)ⁿ and makes different claims than we do about what is valid but accepts the same normative constraints on belief, may disagree with us merely verbally (and not “genuinely”) (Field 2009a, 357). To say this is to give (VB)ⁿ the status of a meaning-constituting or analytic truth. That is what we say about people who think that triangles are four-sided polygons.

I find this a bit surprising, since Field expresses skepticism himself about parallel moves connecting the meanings of the logical constants to particular inference rules. He remarks himself that there is no clear notion of intertheoretic sameness of meaning for logical connectives, and he gives a nice example of intransitive translation to show this (Field 2009a, 346–7).

It might seem that the case for skepticism that (VB)ⁿ is constitutive of the concept of validity appears even stronger than the case for skepticism about modus ponens as constitutive of the meaning of the conditional. For there are many classic reasons one might reject (VB)ⁿ. One might think that given our cognitive limitations, we cannot have logically closed belief sets, and it cannot be that we ought to do

something we cannot do. One might think also, that, given our limited cognitive resources, we often *ought not* believe trivial logical consequences of things we believe, even when we can believe them. One might even think that, in certain cases, one ought to have belief sets that are inconsistent, because one has strong evidence for each of the propositions in the set, but also for believing that their conjunction is likely false. (The Preface Paradox is the clearest illustration of how this might happen.)

Field does offer some responses to these standard worries. Against the “clutter avoidance” worry, he says that the apparent counterexamples are cases where we do in fact accept the epistemic norms posited by (VB)ⁿ but also accept overriding non-epistemic norms governing resource usage. In response to the Preface worry, he proposes a normative constraint on partial belief:

(VP)ⁿ Our subjective credences should be such that our credence in the conclusion of a valid argument is at least 1 minus the sum of our uncertainties in the premises (where one’s uncertainty in p is 1 minus one’s credence in p).

This allows us to have high credences in a large number of claims, while disbelieving their conjunction.

However, (VP)ⁿ is incompatible with some logical theories that it would seem rash to rule out as embodying a conceptual confusion about the concept of validity. Seth Yalcin, Malte Willer, and Justin Bledin have advocated thinking of validity in terms of the preservation of acceptance at an information state (rather than truth) (Yalcin 2012; Willer 2012; Bledin 2014). When combined with a view of epistemic modals as quantifying over the worlds left open in an information state, this conception of validity makes the argument from ϕ to $\text{Must}(\phi)$ come out valid. But on these views, one is permitted to have a credence of 0 in $\text{Must}(\phi)$ together with a high credence in ϕ . If (VP)ⁿ really articulates a conceptual truth about validity, then Yalcin, Willer, and Bledin just mean something else by “validity.” But their articles give various arguments as to why acceptance preservation is a better way to think about intertheoretic validity than truth preservation, and assessing their claims cannot be as simple as noting that they conflict with (VP)ⁿ.

IV

In light of these worries, it seems worth asking whether something weaker than a *conceptual* connection between validity and cognitive norms might support an interesting sense in which logic is a normative discipline. Perhaps it is enough if the connection between validity and the norm for belief is *primitive*—that is, not explained by the application of any intermediate concepts—regardless of whether it is conceptual. The connection between the concept *poisonous* and the normative injunction *handle with care* is not primitive, in this sense, because it is explained by something like the following argument:

- a) Something that is poisonous is capable of harming humans if not handled with care.
- b) If something is capable of harming humans if not handled with care, it should be handled with care.
- c) So, something that is poisonous should be handled with care.

But this move from conceptual to primitive connections won't help us to make out an interesting sense in which logic is normative. A primitive connection between two concepts *A* and *B* might hold because of the concept *A*, because of the concept *B*, or because of the interaction of the two. When we drop our talk of conceptual connections, we lose all this information about the directionality. And this matters. For a discipline to be normative, it must use concepts that are explained in normative terms; it is not enough for it to use concepts that are primitively connected with normative concepts.

An example will show this. Consider Timothy Williamson's account of assertion as a speech act governed by the constitutive norm

- (11) You ought to assert that *p* only if you know that *p*.

Part of what's involved in saying that (11) is a constitutive norm for the act type *assertion* is that it is not implied by other, more basic principles about assertion or knowledge. (11) asserts a *primitive* connection between knowledge and norms for asserting. And it is plausible that this connection shows that the theory of speech acts—including assertion—is a normative discipline. But it *doesn't* show that epistemology—the theory of knowledge—is a normative discipline. Why not? Because, plausibly, the primitive connection in (11) is constitutive of the concept of (or perhaps the nature of) assertion, not of concept of (or nature of) knowledge.

If we limit ourselves to considering whether a connection between concepts is primitive, and deprive ourselves of any vocabulary for assigning responsibility for this connection to one concept or the other, we will be unable to make this kind of distinction.

Turning to the case that interests us: in discussing Frege's views, I suggested that Frege takes validity to imply norms for judgment because (a) he thinks that validity requires truth preservation, and (b) he accepts a normative principle that one ought to believe only what is true (2). Because the connection between validity and cognitive norms is mediated in this way, it isn't primitive. But the question of whether the connection is constitutive of the concept of validity is, I think, left open. We might say that the normative connection between truth and belief (2) partially defines the concept of truth, or that it partially defines the concept of belief, or both. If it partially defines only the concept of belief, then there is no conceptual link between validity and norms for belief, any more than there is a conceptual link between rattlesnakes and norms for handling things. But if it partially defines the concept of truth—if truth is understood as that at which judgment aims³—then we would have a conceptual link between validity and cognitive norms, since the concept of validity is to be understood in terms of truth, and the concept of truth is to be understood in terms of cognitive obligations.

V

It looks as if an interesting thesis to the effect that logic is normative stands or falls with the possibility of a normative analysis or partial analysis of validity. As we noted above, Field seems to present some normative principles as partial analyses of validity; anyway, it is difficult to understand what he says about these principles if they do not have that status. So why does he resist giving a full analysis? One might assume it's because he only has normative necessary conditions, not a necessary and sufficient condition. But that's not the reason he gives. What he says is that "it would sully the purity of logic to define validity in normative terms whose exact content is less than clear" (Field 2015, 25).

I don't understand this. If it would sully the purity of logic to give a full definition in murky normative terms, then shouldn't it also sully the purity of logic to give a

³Some authors have held that truth is a normative notion for Frege (e.g., Burge 1986).

partial definition in murky normative terms? Either way, you have to accept that a full grasp of the notion of validity requires the use of messy normative concepts.

So the reason Field gives for resisting a full analysis, and hence the strong normativity of logic, isn't a good one. But note that Field does *not* say he's resisting giving a definition because he does not have necessary and sufficient conditions. Indeed, his goals seem to require normative necessary and sufficient conditions. Field wants to vindicate the idea that "a disagreement about validity (insofar as it isn't merely verbal) is a disagreement about what constraints to impose on one's belief system" (Field 2015, 11). He seems to hold that the substantive content of a claim about intertheoretic validity is exhausted by the normative constraints, so that when two parties agree on these, any further disagreement about "validity" can be merely verbal:

It is possible to imagine someone proposing a different connection between implication and degrees of belief, with the result that *despite different claims about 'implication'*, he accepts *precisely the same constraints on degrees of belief*. When that happens, I suggest, the proponents of the different logics don't genuinely disagree. (Field 2009a, 357)

A disagreement about validity (insofar as it isn't merely verbal) is a disagreement about what constraints to impose on one's belief system. (Field 2015, 11)

If the normative condition were merely necessary and not also sufficient for validity, then two parties could agree on all the normative constraints and still genuinely disagree about validity. So, a dilemma for Field. Either we have a normative necessary *and* sufficient condition for validity, in which case there seems to be no reason to favor a partial definition over a full definition; or fundamental disputes about validity need not always bottom out in normative disputes.

Finally, Field suggests explicitly that one of his proposed normative necessary conditions for validity,

(2⁺_{cond})

If $A_1, \dots, A_n \Rightarrow B_1, \dots, B_m$ then for all C and D ,
 $\sum_{i \leq n} Dis(A_i|C/D) + \sum_{j \leq m} Cr(B_j|C/D) \geq 1$,

can be promoted into a necessary and sufficient condition (Field 2015, 23).

The upshot, I think, is that Field needs for his program is a full normative analysis of validity, and this would vindicate the claim that logic is normative in the strong sense.

VI

Indeed, as I'll now show, one of Field's central arguments against understanding validity in terms of truth preservation seems to require a normative sufficient condition.

It can look as if Field is offering an argument with something like the following structure:

1. For reasons connected to the semantic paradoxes, validity cannot be understood in terms of truth preservation.
2. If validity is not to be understood in terms of truth preservation, it should be understood in terms of cognitive norms.
3. So, validity should be understood in terms of its relation to cognitive norms.

I will confess that for a long time I took Field to be arguing in something like this way, abetted by passages like this one: "For if logic is not the science of what necessarily preserves truth, it is hard to see what the subject of logic could possibly be, if it isn't somehow connected to norms of thought" (Field 2009b, 263).

This way of thinking of the argument makes it pretty unsatisfying. For, first, it makes the argument hinge on a fairly technical issue involving the semantic paradoxes, which might be met by deploying further technical resources (see e.g. Murzi and Shapiro 2015). And, second, it is unclear what supports the second premise, which seems to leap boldly over a huge gap between rejecting a characterization in terms of truth preservation and accepting a characterization in terms of cognitive norms. Bridging this gap would require ruling out other alternative characterizations of validity, besides truth preservation and the normative one Field favors. These are not hard to find. For example, intuitionist logicians like Dag Prawitz have suggested that validity should be analyzed in terms of provability: an argument is valid if there is a method for transforming canonical proofs of its premises into a canonical proof of its conclusion (Prawitz 2005). In the dynamic semantic tradition, there are a couple of different ways of thinking of validity: "test-to-test consequence" (the conclusion is accepted in any information state

that accepts the premises) or “update-to-test consequence” (any information state updated with the premises accepts the consequence) (Willer 2015, 839). Seth Yalcin and Justin Bledin have adopted the test-to-test conception in the context of a static truth-conditional semantics (Yalcin 2012; Bledin 2014).

Even if we could rule out all of these alternatives (maybe they all lead to paradox!), we would not be forced to accept that there are conceptual links between validity and cognitive norms. In a discussion of scientific concepts like *electron*, Hilary Putnam suggests that concepts have an “identity through time but no essence” (Putnam 1988). Why think that, unless we have some stable “fix” on the concept of validity via a partial definition or conceptual constraints, we cannot make sense of disputes about validity? To be sure, in any dispute about validity the parties will need to agree on some principles involving validity, or no progress can be made. But why should there be any principle that must *always* be common ground in such agreements?

So, the three-step argument above doesn’t look very compelling. In a brief, unsympathetic reply to Field (2009b), Gil Harman caricatures the argument thus: “In other words, since there is no completely satisfactory solution to the semantic paradoxes, we should think that logic is ‘connected to norms of thought’. Now there is a real non sequitur!” (Harman 2009, 335) But I think this can’t be the right way to look at the argument.

In fact, Field’s argument against understanding validity as truth-preservation *presupposes* a normative characterization of validity, and can’t be part of a non-question-begging argument for one. To see this, we need to look at the argument more closely.

Field says that, “for *nearly* every way of dealing with the truth-theoretic paradoxes, it is inconsistent to hold that the logic one accepts *actually* preserves truth” (Field 2009a, 351). The precise reason varies from case to case. Field’s preferred

approach to blocking the Curry Paradox is to reject the use of \rightarrow -intro at line 6:

1	$K \equiv (T(\langle K \rangle) \rightarrow \perp)$	Diagonal lemma
2	$T(\langle K \rangle)$	
3	K	T principles
4	$T(\langle K \rangle) \rightarrow \perp$	\equiv -elim, 1, 3
5	\perp	\rightarrow -elim, 2, 4
6	$T(\langle K \rangle) \rightarrow \perp$	\rightarrow -intro, 2–5
7	K	\equiv -elim, 1, 6
8	$T(\langle K \rangle)$	T principles
9	\perp	\rightarrow -elim, 6, 8

Now suppose say that the argument in the subproof (lines 2–5) is truth-preserving:

$$T(\langle T(\langle K \rangle) \rangle) \rightarrow T(\langle \perp \rangle)$$

Then we can prove $T(\langle K \rangle) \rightarrow \perp$ even without the \rightarrow -intro rule:

1	$T(\langle T(\langle K \rangle) \rangle) \rightarrow T(\langle \perp \rangle)$	Truth-preservation claim
2	$T(\langle K \rangle) \rightarrow \perp$	T principles

That is, if we have a truth predicate licensing the intersubstitution of any sentence S with $T(\langle S \rangle)$, restricting the conditional introduction will block Curry's paradox, but *only if* we also refrain from asserting that the subargument in lines 2–5 is truth-preserving, in the sense that if the premises are true, the conclusion is true.

So we face a difficult choice:

1. we can refrain from asserting that the argument in the subproof of our original derivation of Curry's Paradox is valid, or
2. we can assert that it is valid, but refrain from asserting that it preserves truth.

Field thinks we must take option #2, giving up the claim that all valid arguments preserve truth. But what exactly is the problem with option #1? Field envisions a theorist who takes himself to be normatively constrained by the argument in just the way validity requires, but refuses to say that it is valid:

That's very odd: this theorist accepts the reasoning from K to $0 = 1$ as completely legitimate, and indeed *it's only because he reasons in that way that he sees that he can't accept K* ; and yet on the proposed definition of 'valid' he is precluded from calling that reasoning "valid". (Field 2015, 9)

But why, exactly, should this be bad, unless taking a certain kind of normative stance to the premises and conclusion of an argument—holding that one cannot accept the premise without accepting the conclusion—is *sufficient* for the argument's validity? So the argument, in effect, *presupposes* a connection between validity and norms for belief. What's more, it presupposes normative *sufficient condition*, not a normative necessary condition like (VP)ⁿ. (VP)ⁿ says that whenever an argument is valid, a certain normative constraint holds; what Field seems to need here is the claim that whenever the normative constraint holds, the argument is valid.

This would make the argument question-begging, if it is supposed to be offering positive reasons for supposing accepting a normative condition for validity. On my reading, it is not trying to do this; it is getting us to see that we already accept such a condition, and that we're willing to hold onto the normative connection even if it means letting go of a connection between validity and truth preservation.

VII

To summarize the main points I've made:

- To show that logic is normative in an interesting sense, one needs to make an analytical claim about the concept of (intertheoretic) validity. It is not enough just to argue for some bridge principles connecting validity and cognitive norms; these principles must be partially constitutive of the concept of validity.
- Field resists giving a normative analysis or definition of validity, but he shouldn't. The reason he gives for resisting a full analysis is weak, and for his purposes he needs normative necessary and sufficient conditions.
- Although it looks as if Field is arguing that, because we must break the link between validity and truth preservation, we must accept a link between validity and cognitive norms, this is not how we should understand the

argument. For his argument against truth preservation presupposes that we already accept a normative sufficient condition for validity.

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