Quandary and Intuitionism: Crispin Wright on Vagueness

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1. The philosophical problems of vagueness are set by the sorites paradox, an instance of which is given by the following inference (SI):

> (1) A person with only 2¢ isn't rich.
>
> (2) There isn't a non-negative integer n such that a person with n¢ isn't rich but a person with n + 1¢ is rich.
>
> (3) ∴ A person with 5,000,000,000¢—i.e. $50 million— isn't rich.

Put into symbolic abbreviation, this reads:

> (1) ¬R(2)
>
> (2) ¬∃n[¬R(n) & R(n + 1)]
>
> (3) ∴ ¬R(5,000,000,000)

SI is a paradox because it presents four appearances that cannot all be veridical: first, it appears to be valid—after all, it's both classically and intuitionistically valid; second, its sorites premiss, (2), seems merely to state the obvious fact that in the sorites march from 2¢ to 5,000,000,000¢ there is no precise point that marks the cutoff between not being rich and being rich; third, premiss (1), which asserts that a person with only 2¢ isn't rich, is surely true; and fourth, the conclusion (3), which asserts that a person with 5,000,000,000¢—i.e. $50 million—isn't rich, is surely false.

2. SI is evidently unsound, since its conclusion is evidently false. So one thing we expect from a resolution of the paradox it presents is a pinpointing of why it's unsound. Perhaps this pinpointing would reveal that one of the four mutually incompatible appearances was determinately spurious; or perhaps it would merely reveal that it was in

some way indeterminate which of the appearances was spurious. Either way, the pinpointing would show that one or more of the appearances didn't have the plausibility it might at first have seemed to have. So a second thing we should expect from a resolution of the paradox is an account of why it is that the now-identified problematic appearance, or appearances, ever seemed to have a better standing.

Many philosophers, including Crispin Wright, would suppose that the first task is easily accomplished: since SI is obviously valid, (1) is obviously true, and (3) is obviously false, we are simply bound without further ado to regard SI as a reductio of its sorites premiss (2). In other words, SI is determinately unsound because premiss (2) is determinately false. For these philosophers, the only difficult task is the second, which for them means explaining why (2) isn't true, given that it seems merely to be denying the apparent falsehood that there is a precise 1¢ cutoff that separates the non-rich from the rich.

For the classical logician, the negation of (2),

$$[DN] \; \neg\neg\exists n[\neg R(n) \; \& \; R(n + 1)],$$

is equivalent, via double-negation elimination (DNE), to

$$[\exists] \; \exists n[\neg R(n) \; \& \; R(n + 1)],$$

which seems to assert that there is the precise 1¢ cutoff in question. The classical logician has the formidable task of explaining how $\exists$ can be true, and supervaluationism and epistemicism dominate, if they don't exhaust,[1] the ways she has to do this.

The supervaluationist foregoes the semantic principle Bivalence (every statement is true or false) in order to keep the logical principle LEM (the law of excluded middle: every statement of the form $(S \lor \neg S)$ is necessarily true) and the rest of classical logic. She holds that if a statement is borderline, then it's neither true nor false, notwithstanding that the instance of LEM formed by it and its negation is necessarily true. She can hold this because, for her, a statement is true just in case it's true under every admissible precisification, false just in case it's false under every admissible precisification, and neither true nor false just in case it's true under some admissible precisification and false under another. An admissible precisification of a statement is, roughly speaking, the

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[1] I count Edgington's (1996) degree-theoretic treatment of vague discourse as a notational variant of supervaluationism: see Schiffer (2003), 193-4.

assignment to it of a precise bivalent interpretation under which the statement may be either true or false if it's borderline, but will be true under the interpretation if it's determinately true, and false under the interpretation if it's determinately false. In this way, a statement of the form $(S \vee \neg S)$ is guaranteed to be true even when, being borderline, neither S nor $\neg S$ is true, since in every admissible precisification one of the statements S or $\neg S$ will be true. Likewise, mutatis mutandis, for ∃: it may be true for the supervaluationist even though there is no particular number that makes it true; for it may be that even though there is no number n such that the statement that $[\neg R(n)\ \&\ R(n + 1)]$ is true in every admissible precisification, there is for each admissible precisification a non-negative integer n such that the statement that $[\neg R(n)\ \&\ R(n + 1)]$ is true in that precisification, thus making ∃ true in every admissible precisification, and thus true absolutely. So the supervaluationist might try to explain why the truth ∃ seems implausible by speculating that we mistakenly take it to imply that there is a sharp cutoff, i.e. that there is some non-negative integer n such that the statement that $[\neg R(n)\ \&\ R(n + 1)]$ is true.

But this isn't a very good way to explain away ∃'s apparent implausibility. There remains the unanswered question of why, if the supervaluationist has given the correct account of ∃'s truth conditions, we supposed in the first place that in order for ∃ to be true there must be something that satisfies its quantified open sentence '$[\neg R(n)\ \&\ R(n + 1)]$'. One is perhaps more likely to think that supervaluationism has it wrong and that in order for a disjunction to be true it really must have a true disjunct, and that in order for an existential generalization to be true, it really must have a witness. The more important problem, however, is that there are telling objections to supervaluationism as an account of vagueness.[2] For example, it may be that the statement that Louise won't go out with Harold because he's bald may be true, even though it's *false* on every admissible precisification (e.g. it's false that Louise won't go out with Harold because he has fewer than 2,152 hairs on his scalp),[3] and, as Wright observes, it also gives the wrong result on

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[2] See e.g. Schiffer (2003), 187-91.
[3] Examples like this are discussed in Schiffer op. cit.

'No one can knowledgeably identify a precise boundary between those who are tall and those who are not'.[4]

Wright has another telling objection to supervaluationism, one that suggests, as we'll see, his own novel account of vagueness. He points out that supervaluationism doesn't cohere with the characteristic mental state of one for whom a proposition presents itself as borderline. Actually, this objection isn't leveled just against supervaluationism, but to all *third-possibility views of indeterminacy*—that is, to every view according to which "indeterminacy consists/results in some kind of status other than truth and falsity—a *lack* of a truth value, perhaps, or the possession of some other truth value."[5] Wright's objection to any third-possibility theory, and thus to supervalutionism, is that:

> It is quite unsatisfactory in general to represent *in*determinacy as any kind of *determinate* truth status—any kind of middle situation, contrasting with both the poles (truth and falsity)—since one cannot thereby do justice to the absolutely basic datum that in general borderline cases come across as *hard cases*: as cases where we are baffled to choose between conflicting verdicts about *which polar verdict applies*, rather than as cases which we recognise as enjoying a status inconsistent with both. Sure, sometimes people may non-interactively agree … that a shade of colour, say, is indeterminate; but more often—and more basically—the indeterminacy will be initially manifest not in (relatively confident) verdicts of indeterminacy but in (hesitant) differences of opinion (either between subjects at a given time or within a single subject's opinions at different times) about a polar verdict, which we have no idea how to settle—and which, therefore, we do not recognize as wrong.[6]

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[4] Wright (2003b), 88.
[5] Wright (2003a), 475.
[6] Ibid., 476.

If the supervaluationist account of borderline propositions were correct, we would expect a person who took a proposition to be borderline to judge that it was neither true nor false. If, for example, you take Harry to be borderline bald, we should, given the supervaluationist account of vagueness, expect you to know that it's not the case that Harry is bald and not the case that he's not bald. Wright's point is that that isn't what we find. You won't judge that it's neither true nor false that Harry is bald but will instead be in a *quandary* about what to think about Harry's being bald. Your state of mind will be one of *ambivalence*, in that you will have some inclination to say that Harry is bald and some inclination to say that he's not bald, and, if you're reflective, you're apt to doubt that anything could possibly be forthcoming to resolve the issue for you. The supervaluationist, or any other third-possibility theorist, must explain why you're in a state of quandary, or ambivalence, rather than in the entirely unambivalent state of knowing that it's neither a fact that Harry is bald nor a fact that he's not bald. What will the supervaluationist say, that you will have to master his theory in order for you to be in the correct mental state when Harry comes across to you as borderline bald?

The epistemicist accepts classical logic and Bivalence. For her, $\exists$ does entail, as it seems to do, that there is a non-negative integer n such that the statement that $[\neg R(n) \& R(n + 1)]$ is true. Indeed, epistemicism entails that everything we state has absolutely precise truth conditions. If I say that Mara is old, then the epistemicist must hold that there is some precise moment of time t and some number n such that my statement is true iff t is the precise moment of time at which Mara began to exist and n nanoseconds have passed since t. The epistemicist then devotes as much ingenuity as he can muster to explaining why we seem unable to locate these precise boundaries and why we mistakenly doubt their existence.

One problem with epistemicism is that there are good reasons for doubting that there are reference-determining factors that could determine precise truth conditions for our statements.[7] You call me in New York from Los Angeles and ask about the weather. I reply, "It's very cold." There seem not to be extension-determining factors that could make it the case that there is some precise area of space s and some precise number n such that my statement is true iff the temperature in s at the time of my utterance was n°C

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[7] See e.g. Schiffer (1999) and (2003), 181-7, and Wright (2003b).

or less. The epistemicist's commitment to there being such exquisitely fine-tuned extension-determining factors is on a par with Leibniz's commitment to this being the best of all possible worlds.

A second problem with epistemicism is that, like third-possibility theories of vagueness, it doesn't cohere with the characteristic mental state of one for whom a proposition presents itself as borderline—but in a different way from the way in which third-possibility theories don't cohere. You are presented with Harry in circumstances that are epistemically optimal for your judging whether or not he's bald and for judging whether or not he's tall. Suppose you take him to be borderline bald and borderline tall, and that you take there not to be any connection between a man's height and the extent of his hirsuteness. Since you take Harry to be borderline bald, you have some inclination to say that he's bald and some inclination to say that he's not bald, and likewise, *mutatis mutandis*, for his being tall. Suppose that these inclinations are of equal strength. To what degree should you be inclined the say that Harry is bald and tall?

If epistemicism were correct, you should be much less inclined to say that Harry is bald and tall than you are to say either that he's bald or that he's tall. Your inclinations-to-say would be manifestations of, and thus explained by, partial beliefs about propositions you took to be either true or else false, and these partial beliefs would be manifestations of your *ignorance*, and thus *uncertainty*, about facts beyond your ken— that he was bald, or else not bald, and that he was tall, or else not tall. These partial beliefs would arguably be normatively governed (relative to certain idealizations and qualifications) by the axioms of classical probability theory. So, if you believed to degree 0.5 that Harry was bald and to degree 0.5 that he was tall, and you took these two propositions to be independent, then you should believe the conjunction that Harry was bald and tall to degree 0.25. That is indeed how it should be, given that you think that what is at issue is a combination of facts that is beyond your ken. After all, you think each conjunct can go either way, but it's a much stronger thing to suppose that they will both go the same way.

But I don't think you would, or should, be much less inclined to say that Harry is bald and tall than you are to say either that he's bald or that he's tall. You would, and should, be as inclined to say that he's bald and tall as you are to say that he's bald and

that he's tall, given that the degree to which you're inclined to say that he's bald is the same as that to which you're inclined to say that he's tall. Your situation isn't that you have only a small degree of evidence for a conjunction that may or may not be a fact. As far as you're concerned, all the evidence you could possibly have is already in. Your situation isn't one of *uncertainty*; it's one of *ambivalence*. You don't suppose that there are two secret facts—one concerning whether or not Harry is bald, the other whether or not he's tall; all the facts are right there before you, and your ambivalence just is your competing inclinations concerning how to describe the facts you know to be right under your nose. You're not lacking *evidence* for something that is determinately one way or determinately the other; it's that the underived conceptual roles of your concepts of baldness and of tallness are each pulling you in opposing directions, when you know there is no conceptual court of appeals to resolve the matter for you.

Inclinations-to-say regarding what you take to be matters of determinate fact are manifestations of partial beliefs. Is your inclination to say that Harry is bald a manifestation of a partial *belief* that Harry is bald, when Harry presents himself to you as a borderline case of a bald man? The answer may not be obvious.[8] If you do have a partial belief that Harry is bald, when you take him to be borderline bald, then that would show that there are two kinds of partial beliefs, distinguished by the principles that normatively govern them. In *The Things We Mean* I argued that there were these two kinds of partial beliefs, and I called them *standard partial beliefs* (SPBs) and *vagueness-related partial beliefs* (VPBs). SPBs are (under suitable idealization) normatively governed by the axioms of classical probability theory.[9] They are partial beliefs that manifest *uncertainty* about propositions we take to be determinately true or determinately false. If you believe to degree 0.5 that you left your keys in your office, then that is most likely an SPB and it represents your ignorance about where you left your keys, when you suppose that the question of where you left them has a determinate answer. When x comes across to you as borderline F, you will have some inclination to say that x is F, and some inclination to say that x isn't F. If the mental states these inclinations manifest are

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[8] See Schiffer (2003), ch. 5.
[9] This needs qualification for the interaction of SPBs with VPBs; a more accurate statement would be that SPBs would be normatively governed by the axioms of probability theory if they were the only kind of partial belief.

beliefs, then they are VPBs, partial beliefs that are not normatively governed by the axioms of probability theory, and if in circumstances that are optimal for judging both Harry's baldness and his tallness you v-believe to degree 0.5 both that he's bald and that he's tall, then you should also v-believe to degree 0.5 that he's bald and tall. If, however, epistemicism were correct, the manifested partial beliefs would be SPBs, and you should believe the conjunction to degree 0.25, given that you take the two conjuncts to be independent. For present purposes, we don't need to resolve the issue of whether there are two kinds of partial *beliefs*. It's enough to see that the ambivalent state of mind of one who takes a proposition to be borderline isn't a manifestation of an SPB, the sort of partial belief in a proposition that goes with taking that proposition to be either determinately true or determinately false. But it would be if epistemicism were correct.

So, by my lights, neither supervaluationism (or any other third-possibility theory of vagueness) nor epistemicism can accommodate the characteristic mental state of one for whom a proposition presents itself as borderline.

3. At this point we have something of an argument for an intuitionistic response to the sorites—at least for one who, like Wright, is confident that SI is a reductio of its sorites premiss. For this theorist accepts DN ($\neg\neg\exists n[\neg R(n) \& R(n + 1)]$), and she takes herself to have eliminated the only ways of defending $\exists$ ($\exists n[\neg R(n) \& R(n + 1)]$). She must therefore deny the validity of DNE (double-negation elimination), precisely the position of the intuitionist about logic, who is led to deny the validity of DNE by way of refusing to affirm LEM while, at the same time, having a disproof of its negation, $\neg(S \lor \neg S)$.

So far, perhaps, OK, but for the intuitionist response to the sorites to be part of a fully adequate resolution of that paradox, it must be shown to be motivated by an account of what it is to be a borderline case, and this in a way that explains the specious plausibility of the now denied sorites premiss. If the sorites premiss, $\neg\exists n[\neg R(n) \& R(n + 1)]$, is false, how did it come to seem plausible, and what is it about being a borderline case that allows us to accept DN but precludes our accepting the classically valid inference from it to $\exists$? Wright's answers to these questions, in so far as he has answers, may be gleaned from his account of vagueness.

Wright cannot accept any third-possibility account of vagueness, and he cannot accept the epistemic account of vagueness—for all that matters, any account that accepts Bivalence for borderline propositions and is thereby forced to accept the existence of the sharp cutoffs so much in doubt. But if he can't accept either a semantic or an epistemic account of vagueness, what sort of account is there that is left for him to accept? His implicit answer is that he can accept a *psychological* account of vagueness: an account of vagueness in terms of the characteristic mental state of one for whom a proposition presents itself as borderline, the state he calls *quandary*. If this is right, then among the questions confronting him are these:

> (A) What is quandary, the characteristic mental state of one
> for whom a proposition presents itself as borderline?
>
> (B) How does quandary enter into an account of
> vagueness?
>
> (C) How does quandary help to motivate an intuitionistic
> response to the sorites?

Wright's most complete answer to (A) is given by the following conditions:

> [A] proposition P presents a quandary for a thinker T [who
> is assessing P in circumstances that are optimal for judging
> P] just when the following conditions are met:
>
> (i) T does not know whether or not P;
>
> (ii) T does not know any way of knowing whether or not
> P;
>
> (iii) T does not know that there is any way of knowing
> whether or not P;
>
> (iv) T does not know that it is (metaphysically) possible to
> know whether or not P; and
>
> (v) T does not know that it is (metaphysically) impossible
> to know whether or not P.[10]

It seems indisputable that one who takes a proposition to be borderline will satisfy conditions (i)-(iii), but what about conditions (iv) and (v)?

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[10] Wright (2003a), 504-5.

Condition (iv) needs to be recast if it's to be correct. It needs to be recast because there is a clear sense in which you *do* know that it's metaphysically possible to know that Harry is bald, even though you take him to be borderline bald: you know that there is a metaphysically possible state of affairs in which Harry is as bald as a billiard ball and you know it. I take it that what is really at issue in both (iv) and (v) is the view Wright calls *Verdict Exclusion*, which he puts by saying that, where P is borderline, no judgment that P is true or that P is false is "knowledgeable,"[11] but which I'll take the liberty of restating as the view that

> P's being borderline metaphysically entails that no one
> knows either P or not P

Condition (iv) would like to say something to the effect that, while T knows that P is borderline, T does not know that P's being borderline is metaphysically compatible with either P or not P being known. But two things prevent Wright from having (iv) actually say that. First, P might present a quandary for T, and in that way "come across" to her as borderline, even though she lacks an explicit concept of being borderline and is thus incapable of judging that P is borderline. Second, even if that were not a problem, Wright can't allow a restatement of (iv) that explicitly uses the notion of being borderline, since his account of quandary is to be used to say what vagueness is, and (nearly enough for all that presently matters) a proposition's being vague just is the possibility of its being borderline. Evidently, the precisified statement of (iv) would have to find a condition C that did not involve any notion which quandary is earmarked to explain such that (iv) could be rewritten as:

> T knows that P satisfies C but does not know that P's
> satisfying C is metaphysically compatible with P or not P
> being known.

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[11] (2003b), 92. In (2003a) Wright defined Verdict Exclusion as the view that "a borderline case is something about which we know that a knowledgeable positive or negative verdict is ruled out" fn. 47, p. 490, but the (2003b) rendition is the most recent. Wright (personal communication) uses 'knowable' [= capable of being known to be true or to be false] as a predicate of propositions, but uses 'knowledgeable' [= expressive of knowledge] as a predicate of opinions or verdicts.

Since I don't know what C might be, I'll leave the conditions as they are but understand them as though they enjoyed the needed precisification.

A corresponding revision is required for (v); but (v) raises a further issue. Just as (iv) would like to say that T does not know that P's being borderline is metaphysically compatible with either P or not P being known, so (v) would like to say that T does not know that P's being borderline is metaphysically *in*compatible with either P or not P being known. That is to say, (v) aims to express a refusal to accept Verdict Exclusion without explicitly using the notion of being borderline. Now, insofar as (iv) is intended to express the thought that no one knows that it's possible for a proposition to be both borderline and known,[12] it seems clearly to be correct. The same, however, can't be said for (v)'s agnosticism about Verdict Exclusion, as many writers on vagueness, including myself, take Verdict Exclusion to be clearly correct: we take it to be a datum that it's metaphysically *im*possible for a proposition to be both borderline and known. So why does Wright not accept Verdict Exclusion? He proposes two reasons in "Quandary."[13]

His first reason was that he found plausible a certain principle of *Evidential Constraint* (EC) and recognized that EC was incompatible with Verdict Exclusion. EC is a principle Wright takes to be satisfied by the propositions expressed by sentences involving predications of those atomic predicates—'red', 'bald', 'heap', 'tall', 'child', etc.—that provide the standard examples of sorites paradoxes:

> [A] wide class of vague expressions seem to be compliant
> with an intuitive version of Evidential Constraint: If
> someone is tall, or bald, or thin, that they are so should be

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[12] We may re-express the thesis at issue in this abbreviated way since the negation of a borderline proposition is itself borderline.

[13] In a footnote (fn. 47, 489-91) Wright suggests that a further argument against the Verdict Exclusion view is that it can't accommodate higher-order vagueness. The argument relies on the questionable premiss that if P is on the borderline between being definitely true and being first-order borderline, then one isn't warranted in believing that one isn't warranted in believing P or in believing not P. But if one knows that P is second-order borderline in that way, then one knows that it's indefinite whether P is definitely true or neither definitely true nor definitely false, and knowing that precludes one from being warranted in believing either P or not P.

verifiable in normal epistemic circumstances. Likewise if

they are not bald, not tall, or not thin.[14]

Suppose 'F' is a predicate that satisfies EC. Then, following Wright, we may represent
the satisfaction of EC by 'F' by the pair of EC conditionals

$Fx \rightarrow$ it is feasible to know that Fx

$\neg Fx \rightarrow$ it is feasible to know that $\neg Fx$

Now, the predicates that satisfy EC may have borderline cases, and for these atomic
predicates Fx is borderline iff $\neg Fx$ is; so if it were not feasible to know a borderline
proposition, then the consequents of the two displayed EC conditionals would be false,
and we would have the contradiction $\neg Fx$ & $\neg\neg Fx$, thus proving that EC is incompatible
with Verdict Exclusion. To whatever extent Wright is inclined to accept EC, at least to
that same extent he must be inclined to deny Verdict Exclusion.[15]

Wright's second reason for denying Verdict Exclusion was that

(a) if we knew that no verdict about a borderline case
could be knowledgeable, then we would be
"committed to regarding anyone who advanced a
verdict, however qualified, as strictly out of order—as
making an ungrounded claim and performing less than
competently"[16]; but

(b) we are not so committed, for it is an "absolutely basic
datum"[17] about borderline cases that "the impression of
a case as borderline goes along with a [warranted]
readiness to tolerate others' taking a positive or
negative view—provided, at least, that their view is

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[14] Wright (2003b), 96.

[15] To deny Verdict Exclusion is to assert that it's not impossible for a proposition to be
both borderline and known, but this doesn't mean that if Wright denies Verdict Exclusion
then he must accept that it is possible for a proposition to be both borderline and known:
denying DNE as he does, he has the option of not inferring the possibility of knowledge
from the denial of its impossibility.

[16] Wright ibid., 94.

[17] Wright (2003a), 476.

>   suitably hesitant and qualified and marked by a respect
>
>   for one's unwillingness to advance a verdict."[18]

This argument can bear elaboration, but I'll reserve it for when I scrutinize the argument in the critical part of this paper.

So much for Wright's answer to question (A), his account of *quandary*, which is what he calls the characteristic mental state of one for whom a proposition presents itself as borderline.

4. Wright gives an incomplete answer to question (B) (How does quandary enter into an account of vagueness?). He recognizes that he can't answer (B) by saying that borderline propositions are just those that give rise to quandary:

>   [S]ome quandaries—Goldbach's conjecture, for instance—
>
>   feature nothing recognizable as vagueness; and others—
>
>   that infidelity is alright provided nobody gets hurt,
>
>   perhaps—may present quandaries for reasons other than
>
>   any ingredient vagueness. So the task of a more refined
>
>   taxonomy remains—the notion of quandary is just a first
>
>   step.[19]

He then offers a tentative proposal to the effect that an account of what it is for x to be borderline φ—which of course is one leading way for the proposition that x is φ to be borderline—would combine three conditions: (i) that quandary is the characteristic mental state of one for whom x presents itself as borderline φ (notwithstanding that quandary is also the characteristic mental state associated with other kinds of indeterminacy); (ii) that it is known that there are, or at least could be, things that were known to be φ and things that were known not to be φ; and (iii) that it isn't known that it isn't known whether or not x is φ.

But even if we accept the entertained three additional conditions, the fact that "quandaries are relative to thinkers … and to states of information"[20] shows that we

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[18] Wright (2003b), 92.
[19] Ibid., 504.
[20] Ibid., 505.

would still lack a sufficient condition for x's being borderline φ—or indeed for any kind of indeterminacy. For if a proposition is borderline, or in any other way indeterminate, then, while there may be possible worlds in which it isn't indeterminate, it is actually indeterminate at all times in the world in which it is indeterminate, no matter who is attempting to judge it.

It's possible Wright would claim that vagueness can be explained in terms of quandary in a sense that is compatible with there not being any way of *defining* vagueness in terms of quandary. After all, what in philosophy can be defined? In the end, Wright suggests, not uncryptically, that "the notions of observationality and response-dependence would provide two obvious foci for the search" for a final account of vagueness; but he leaves that search for another day, and concludes his article on quandary on the hope that he "conveyed … something of the general shape which a stable intuitionistic philosophy of vagueness might assume."[21]

5. This brings us to question (C) (How does quandary help to motivate an intuitionistic response to the sorites?). Wright, we have already noted, would regard it as "really only common sense" that SI—viz.

> (1) $\neg R(2)$
>
> (2) $\neg \exists n[\neg R(n) \ \& \ R(n + 1)]$
>
> (3) $\therefore \ \neg R(5,000,000,000)$

—is a *reductio* of its sorites premiss, (2), and on this the majority of philosophers who take on the sorites would agree with him. What distinguishes Wright from those other philosophers is that he would take himself to be warranted in not accepting

> (∃) $\exists n[R(n) \ \& \ \neg R(n - 1)]$,

notwithstanding a disproof of its negation, a position that, of course, requires him to deny the validity of classical logic's DNE, which *would* enforce the inference to ∃ from its double negation,

> (DN) $\neg \neg \exists n[\neg R(n) \ \& \ R(n + 1)]$

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[21] Ibid., 508.

His warrant, we know, is based on—although not exclusively on—his quandary account of vagueness.

There are three things Wright must do to achieve a fully adequate response to the sorites, and he intends quandary to play a crucial role in all three achievements: (a) He must show that we are justified in not accepting the validity of DNE; (b) he must show why we are justified in refusing to accept ∃, notwithstanding a disproof of its negation;[22] and (c) he must explain how SI's sorites premiss, $\neg\exists n[\neg R(n) \ \& \ R(n+1)]$, came by what he takes to be its spurious plausibility.

(a) Wright, qua anti-realist, holds that vague atomic predicates apt to enter into sorites reasoning satisfy evidential constraint (EC). Letting F be such a predicate, we then have

(i) $(F\alpha \rightarrow \text{FeasK}[F\alpha]) \ \& \ (\neg F\alpha \rightarrow \text{FeasK}[\neg F\alpha])$

Suppose that α is borderline F. Then, given the quandary account of borderline propositions, we don't know whether or not it's feasible to know either $F\alpha$ or $\neg F\alpha$, i.e.

(ii) $\neg K(\text{FeasK}[F\alpha] \vee \text{FeasK}[\neg F\alpha])$

A problem arises if we now further assume that LEM holds for borderline propositions, i.e. that

(iii) $F\alpha \vee \neg F\alpha$

For (i) and (iii) entail

(iv) $\text{FeasK}[F\alpha] \vee \text{FeasK}[\neg F\alpha]$

The problem is that we would then, quite inexplicably, be unable to know both (i) and (iii), for if we could know (i) and (iii), then we could also easily come by deduction to know (iv), which knowledge is ruled out by (ii). It is to this line of reasoning that Wright alludes when he writes:

> [I]t cannot stably be supposed that each of EC, LEM and
> NKD [(ii), for our purposes] is known. Anti-realism
> supposes EC is known a priori, and NKD seems
> incontrovertible …. So the anti-realist must suppose that

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[22] Wright needs (b) as well as (a), because merely showing that we should accept a logic in which DNE isn't valid does nothing to show that the proposition doubly negated in a true double negation isn't also true.

> LEM is not known—agnosticism about it is mandated so
> long as we know that we don't know that it is feasible to
> decide any significant statement. Since logic has no
> business containing first principles that are uncertain,
> classical logic is unacceptable in our present state of
> information.[23]

Now, while for the anti-realist $(F\alpha \lor \neg F\alpha)$ isn't known, it's also the case that she has a disproof of its negation, and thus a proof of its double negation,

$$\neg\neg(F\alpha \lor \neg F\alpha),$$

thereby precluding her from accepting the validity of DNE. In this way, the anti-realist is precluded from accepting that one can validly infer

$$(\exists)\ \exists n[\neg R(n)\ \&\ R(n+1)]$$

from

$$(DN)\ \neg\neg\exists n[\neg R(n)\ \&\ R(n+1)]$$

But this line of argument falls short of establishing what Wright needs to establish. It shows that *the anti-realist*—who by definition claims to know EC—cannot accept the validity of DNE; but what Wright owes us is an argument to show that *we*—who may not be anti-realists—cannot be justified in accepting the validity of DNE. Since NKD is indeed incontrovertible, the contest is between EC and LEM. Many philosophers will take this to be an argument for rejecting EC; so where is Wright's *argument* for EC?

He doesn't offer one, but instead acknowledges that

> The general thrust of our discussion involves—as one
> would naturally expect of an advertised intuitionistic
> treatment—a heavy investment in EC. As I have said, I
> believe the principle is plausible for the kinds of statement
> that feature in the classic examples of the Sorites paradox
> ….[24]

Wright does, however, suggest that he will have the argument he needs if he can show that one should regard EC as merely an epistemic possibility. For suppose we accept that

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[23] Ibid., 470.
[24] Ibid., 489-90, fn 47.

quandary, as characterized, is true of borderline cases and that while we don't actually endorse EC, we nevertheless leave open the possibility that it might be right. Then

> it must be that our (presumably a priori) grounds for LEM
>
> are *already* inconclusive …. But in that case we should
>
> recognize that LEM already lacks the kind of support that a
>
> fundamental logical principle should have ….[25]

So much—for now—for Wright's case for refusing to accept the inference from DN to ∃.

(b) We also need to see what reason there is for being agnostic about ∃, especially given that we're supposed to be convinced that its negation, the sorites premiss, is false. The argument again turns on EC, and may be reconstructed in the following way.

If ∃, then it has a unique realizer—a unique truth of the form $[\neg R(\alpha) \ \& \ R(\alpha + 1)]$.[26] If—as we're assuming on behalf of the anti-realist—EC holds for R, then it would also be the case that it was feasible to know $\neg R(\alpha)$ and feasible to know $R(\alpha + 1)$, and thus feasible to know $[\neg R(\alpha) \ \& \ R(\alpha + 1)]$. But we know from construction of the sorites series in question that both $\neg R(\alpha)$ and $R(\alpha + 1)$ would be borderline propositions, and, given the quandary account of borderline propositions, it isn't known that it's feasible to know either proposition, and therefore isn't known that it's feasible to know their conjunction. So—since we're taking EC as known—we know that if ∃, then it has a realizer that is feasibly known. But we don't know that it has a feasibly known realizer. Evidently, for any P, Q, if one knows that if P, Q, and one doesn't know Q, then, ceteris paribus, one doesn't know P. We may take cetera to be paria in the present case. Therefore, we don't know ∃. Since we do know that ∃'s negation is false, we see that ∃ is another quandary.[27]

This argument does seem sound to me—given EC.

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[25] Ibid., 486, fn. 44.

[26] A *unique* truth of that form by virtue of its being a conceptual truth about being rich, that if having a given amount of money makes you rich, then having more than that also makes you rich.

[27] The argument this reconstructs is at ibid., 487.

(c) But how is Wright to explain the seeming plausibility of the sorites premiss, given that he takes it to be false? When I glossed the intuitive case for SI's sorites premiss, I stressed the fact that the proposition it denies, ∃n[¬R(n) & R(n + n)], seems to imply the incredibly implausible claim that there is a precise 1¢ cutoff between the non-rich and the rich. But Wright would give a different—or, at least, an additional—gloss. He would say that we are inclined to suppose that it's a conceptual truth about vagueness that 'rich' would not be vague if there were the sharp cut-off entailed by ∃n[¬R(n) & R(n + n)], and that because of this we take the very vagueness of 'rich' to consist, at least in part, in the truth of ¬∃n[¬R(n) & R(n + n)]. But he would then go on to say that we can see that that isn't a good motivation for regarding the sorites premiss as true once we realize that the vagueness of 'rich' consists not in the truth of the sorites premiss, but rather in the *quandary status* of the "unpalatable existential"[28] ∃n[¬R(n) & R(n + n)], and in the realization that we are warranted in refusing to accept the unpalatable existential even while denying the sorites premiss. Still, I think Wright would allow that he hasn't yet offered a complete explanation of the apparent plausibility of the sorites premiss, since he hasn't yet explained why *common sense* is prone to make the *mistake* of denying that vague terms have precise extensions—and thus precise cutoffs in sorites series— when it is merely entitled to be agnostic on that score.

That concludes my rendering of Wright's quandary-based intuitionistic theory of vagueness. I am very sympathetic to a good deal of Wright's ingenious theory, and I regard my own view on vagueness as a relative of his. But intra-familial disputes are not unknown, and the remaining sections are critical of Wright's theory.

6. Quandary, we may recall, is defined thus:

> [A] proposition P presents a quandary for a thinker T [who
> is assessing P in circumstances that are optimal for judging
> P] just when the following conditions are met:
> (i)   T does not know whether or not P;

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[28] This is what Wright calls existentials ∃ in (2003a).

(ii) T does not know any way of knowing whether or not

P;

(iii) T does not know that there is any way of knowing

whether or not P;

(iv) T does not know that it is (metaphysically) possible to

know whether or not P; and

(v) T does not know that it is (metaphysically) impossible

to know whether or not P.

I agree that what is needed to account for vagueness is neither an epistemic nor a third-possibility theory of vagueness, but rather a psychological theory of vagueness which explains vagueness in terms of the characteristic mental state of one for whom a proposition presents itself as borderline. I do not, however, think that quandary, as defined by Wright, is an adequate characterization of that mental state, even if conditions (iv) and (v) are adequately repaired to convey his intended meaning.

One problem with those conditions is that they are too easily satisfied to be of any use, given that 'T' ranges over all thinkers, including the most unreflective and least intelligent of us. For even if it were possible for some of us to know that there is a way to know whether or not borderline Harry was bald, such knowledge might simply be beyond the cognitive reach of dull Clyde; yet that wouldn't preclude the proposition that Harry is bald from presenting a quandary for him. The needed revision cannot be to replace 'does not know' with 'cannot know', since that would conflict with the intended import of (iv) and (v). Somehow T's not knowing must be circumscribed so that, even if it's over-determined, P's being borderline is sufficient to secure it. But we already know that Wright can't use the notion of a borderline proposition in stating the conditions on quandary. I assume the revision must in effect take the form of each condition's beginning with an appropriate completion of the form

P's having features ___ is sufficient for T's not knowing

that …,

although I myself don't know the features that can fill in the blank.

A second problem, to which I have already alluded, is that condition (v) aims to express (without explicitly invoking the notion of being borderline) the claim that we

can't know that Verdict Exclusion is true, and that, I submit, is wrong: we *can* know that it's metaphysically impossible for a proposition to be both borderline and known.

And a third problem is that even if the conditions on quandary were revised just enough to entail Verdict Exclusion, those corrected conditions would still fail to get at what is truly distinctive about the state of mind that defines what it is to take a proposition to be borderline.

Let me elaborate these two last problems in turn.

One who accepts Verdict Exclusion, and thus rejects (v), takes herself to have two good reasons for thinking she can know that it's metaphysically impossible for a proposition to be both borderline and known.

The first reason is the simple observation that it's evidently metaphysically necessary that, say, if Louise *knows* that the ball is red, then the ball is definitely red, and thus not borderline.   This simple observation certainly gets my immediate assent, and I take my response to be fully justified. Is there any reason to doubt it, apart from Wright's anti-realist driven brief? Well, being borderline is one way of being indeterminate, and Cian Dorr has argued that it's consistent with P's being indeterminate that it's indeterminate whether one knows P.[29] It's clearly possible for a proposition to be borderline, so if Dorr is right, then it should be indeterminate whether one can know a borderline proposition, since all that can be determinately true is that, necessarily, if P is borderline, then no one *determinately* knows P. But I don't think Dorr can be right. I think he overlooks that it's as much of a platitude to say that

> If someone knows that S, then it's determinately true that S

as it is to say that

> If someone knows that S, then S.

The second good reason for accepting Verdict Exclusion is available by reflection on one's epistemic position when confronted with what one knows to be a borderline proposition. Suppose that you are holding a ball in your hands in circumstances that are as good as you can conceive of them getting for judging the ball's color. You are certain you know what color the ball is, whether or not you have a word for that color in your vocabulary; you know that you have mastery of the concept of red; and you know with

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[29] Dorr (2003).

certainty that the color you know the ball to have is not one you can now justifiably say either is or is not red. Furthermore, you cannot even *conceive* of how, given all you know, you could come to have warrant for judging either that the ball is red, or that it isn't red. You rightly take yourself to be in the best possible position to verify whether or not the ball is red, and you can't imagine what you could conceivably find out that would give you knowledge that the ball was, or wasn't, red. Given all that, I would think that you would be entirely justified in thinking that it's impossible, given the obtaining facts, for you, or anyone else, to know whether or not the ball is red. Examples involving any other sorites-prone concept can be used to make the same point.

But what about Wright's reasons for denying Verdict Exclusion?

His first reason was that Verdict Exclusion is incompatible with the satisfaction of EC by the vague terms used to express borderline propositions. There are two problems. First, *every* vague expression must satisfy EC if Wright is to have a fully general account of vagueness and a complete resolution of the sorites; but even if *some* vague expressions, such as 'red', satisfy EC, it's highly doubtful that they *all* do. 'Brave', for example, is vague, but it's doubtful that it's evidentially constrained. Second, I should think that whatever case there may be for EC pales by comparison with the case for thinking that it's metaphysically impossible for a proposition to be both borderline and known, and anyway I don't see that there is much of a case for EC. What *does* seem right about EC is that if a thing is *definitely red*, then it may be known to be red, and if a thing is *definitely not red*, then it may be known not to be red.

Wright's second reason for denying Verdict Exclusion was that:

> (a) if we knew that no verdict about a borderline case could be knowledgeable, then we would be "committed to regarding anyone who advanced a verdict, however qualified, as strictly out of order—as making an ungrounded claim and performing less than competently"[30]; but

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[30] Wright (2003b), 94.

(b) we are not so committed, for it is an "absolutely basic
datum"[31] about borderline cases that "the impression of
a case as borderline goes along with a [warranted]
readiness to tolerate others' taking a positive or
negative view—provided, at least, that their view is
suitably hesitant and qualified and marked by a respect
for one's unwillingness to advance a verdict."[32]

My response is that, while there are two ways in which (b) may be true, (a) is false on
both those ways, and I am not aware of a true reading of (b) that sustains (a). In other
words, the ways in which we must recognize that a person needn't be at fault in taking a
"suitably hesitant and qualified" view about a borderline proposition are entirely
consistent with our knowing that the proposition can't be known. There are two kinds of
case to consider.

The first adverts to my argument (above p. 000) to show that epistemicism
doesn't cohere with the characteristic mental state of one for whom a proposition presents
itself as borderline. Harry comes across as borderline bald both to Al and to Betty.
Consequently, both Al and Betty have some positive inclination to say that Harry is bald,
and some positive inclination to say that Harry isn't bald. At the same time, we may
suppose, there is this difference between Al and Betty: Al's concept of baldness places
Harry closer to being bald than to being not bald, so that his inclination to say that Harry
is bald is stronger than his inclination to say that Harry isn't bald, whereas just the
opposite is true of Betty. We may even suppose that these inclinations are fairly strong,
so that, if we pretend they can be measured by real numbers in the interval [0, 1], we may
say that Harry is inclined to degree 0.75 to say that Harry is bald, while Betty is inclined
to degree 0.75 to say that he is not bald. Such differences in inclinations-to-say are an
inescapable feature of vagueness—or, if you will, of the vagaries of the conceptual roles
of vague concepts both inter-personally at a given time and intra-personally at different
times—and in such a case, neither Al nor Betty may be said to be in any way cognitively
at fault. In such a case we may, if we want, say that Al's inclination to say that Harry is

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[31] Wright (2003a), 476.
[32] Wright (2003b), 92.

bald manifests a "suitably hesitant and qualified" positive stance towards the proposition that Harry is bald, while Betty's inclination to say that Harry isn't bald manifests a "suitably hesitant and qualified" negative stance towards that proposition. But recognizing that we are in no position to find epistemic fault either with Al's stance or with Betty's doesn't preclude our knowing that, given how things are hair-wise for Harry, no one can know either that he is bald or that he is not bald. But how can this be? Surely, a person who is inclined to degree 0.75 to assert a proposition is somewhat confident that the proposition is true, and while it's possible for one to be justified in having that degree of confidence in a proposition that can't be known, that would be because one's epistemic position with respect to the proposition was less than ideal and that, for whatever reason, one was ineluctably limited to incomplete evidence. But that can't be Al's situation; he is in the best possible position for judging whether or not Harry is bald and thus has all the evidence he could possibly have right under his nose. So how can Al's being confident to degree 0.75 be anything other than cognitively misbegotten?

The answer is that Al's degree 0.75 inclination to say that Harry is bald doesn't represent a 0.75 degree of *confidence* that Harry is bald. In fact, it doesn't represent *any* degree of confidence that Harry is bald. It's the borderline-case-induced inclination-to-say that someone could rationally have even if he fully believed that there was no knowable fact of the matter about Harry's baldness. If Al were a philosopher, he might say that he takes Harry to be determinately borderline bald, but that while he places Harry squarely in the penumbra of his, Al's, concept of baldness, he places Harry much nearer to the edge of the penumbra that shares a very fuzzy border with definite baldness than to the edge that shares a very fuzzy border with definite non-baldness. Al's 0.75 degree inclination to say that Harry was bald would call into question Al's epistemic competence only if the inclination manifested what I earlier (p. 000) called an SPB, the kind of partial belief that is normatively governed by the axioms of probability theory. If Al s-believed to degree 0.75 that Harry was bald, then he would be prepared to say that it was quite likely that Harry was bald, and he would take himself not to be in the best circumstances for judging whether or not Harry is bald. Then, subject to a qualification presently to be discussed, we could correctly judge that Al had a belief—an SPB—that was unwarranted. But, by construction of the example, Al's inclination to say that Harry is bald doesn't

manifest any SPB; although he is inclined to degree 0.75 to say that Harry is bald, he has no inclination to say that it's quite likely that Harry is in fact bald, as he would have if his inclination-to-say manifested an SPB. It either manifests no belief state, properly so called, or else it manifests a VPB, a kind of propositional attitude that isn't normatively governed by the axioms of probability theory. Either way, Al's inclination to say that Harry is bald merely manifests the positive side of the two-sided pull that defines the ambivalent, or quandary, state of mind of one who takes a proposition to be borderline, and Al's having it is entirely consistent with his knowing that he is in the best possible circumstances for judging whether or not Harry is bald, and thus that no one can know whether or not Harry is bald.

So much for the first kind of case. In that kind of case, Harry comes across as borderline bald to Al and to Betty, and, therefore, their dispositions to say that Harry is bald are manifestations not of SPBs, but of the states I have called VPBs, and that is why neither can be held to be epistemically at fault by one to whom Harry also comes across as borderline bald. In the correlative instance of the second kind of case, Harry doesn't come across as borderline bald either to Al or to Betty; their dispositions to say that Harry is bald, or not bald, manifest SPBs; they enjoy the same optimal circumstances for judging baldness as those enjoyed by a third person—call him Carl—to whom Harry does come across as borderline bald; and yet Carl, and everyone else, is still correct not to find either Al or Betty to be epistemically at fault. In this instance of the second kind of case, we may even have it that:

- Not only does Harry come across to Carl as borderline bald, but Carl, at ease with his concept of being borderline, explicitly s-believes Harry to be borderline bald.
- Al denies that Harry is borderline bald and s-believes him to be bald.
- Betty denies that Harry is borderline bald and s-believes him not to be bald.
- None of Al, Betty, or Carl is epistemically at fault.

The further facts of the story which vindicate these bulleted points are as follows. Al, Betty, and Carl are educated native speakers of English, none of whom uses 'bald' incorrectly. At the same time, each of their personal concepts of baldness differs somewhat from the others', even to this extent: that under conditions that are optimal for judging whether 'bald' applies to Harry, Al's use of 'bald' at t induces Al to judge that 'bald' applies to Harry, Betty's use of 'bald' at t induces her to judge that 'bald' doesn't apply to Harry, and Carl's use of 'bald' at t induces him to judge that Harry is a borderline case of a man to whom 'bald' applies. This could happen if Harry's scalp appears as hairless as a billiard ball but it's common knowledge that he shaves his scalp and that no one would judge him to be bald if he stopped shaving it and let his hair grow out. Is Harry bald? Suppose, what I have reason to believe is true, that among native speakers of English none of whom could be said to use 'bald' incorrectly, some would answer yes, some would answer no, and some would indicate in one way or another that the question has no determinate answer. Then we may make good sense of Al's, Betty's, and Carl's utterances as follows. For many speakers of English, including Carl, Harry falls into the penumbral region determined by their use of 'bald'; but Al's use of 'bald' is such that Harry falls outside of the penumbral region determined by Al's use of 'bald' and into, so to say, the positive region the use determines; and for Betty the same is true, except that her use of 'bald' has Harry falling in the negative region determined by her use of 'bald'. I trust it's clear that none of our trio need be epistemically at fault. At the same time, it's not clear what to say about what they believe. Should we say that, owing to their different concepts of baldness, each has a true SPB about Harry, an SPB that Al would express by uttering 'Harry is bald', Betty by uttering 'Harry isn't bald', and Carl by uttering 'It's indeterminate whether Harry is bald', or should we say that they are all addressing the same determinate question—viz. whether or not Harry is bald—and disagreeing about the answer? Our criteria for individuating what is said in an utterance, and thus the criteria we use for deeming two people to have said the same thing, are course-grained, context-dependent, and suffer large areas of indeterminacy, so much so that I doubt that the question just posed has a determinate answer. Its not having a determinate answer is, however, compatible with the further claim that, once apprised of the relevant facts about how English speakers divide on what they are inclined to say

about shaved heads, it ought to be clear to all concerned that *as 'bald' is used among English speakers*, it is indeterminate whether it applies to someone who wouldn't be bald if he didn't shave his scalp. In any case, these ways of giving a true reading to Wright's (b) leave him without a true a reading of (a), and thus without a good basis to maintain that we don't know that it's metaphysically impossible for a proposition to be both borderline and known.

My third objection to Wright's account of quandary applies even if his conditions were minimally altered so as to accept Verdict Exclusion. The objection is that the resulting conditions would still leave out what is truly distinctive about the characteristic state of mind of one who takes a proposition to be borderline. This is because even with that correction the conditions wouldn't capture the all-important fact that the characteristic mental state of one for whom a proposition presents itself as borderline is a *state that induces inclinations-to-say but isn't an SPB*.

7. If what I've said so far is correct, Wright's case for an intuitionistic solution to the sorites inference SI is undermined. We can't accept Wright's reason for saying that we should be "agnostic" about what the sorites premiss denies—viz. (∃) ∃n[¬R(n) & R(n + 1)]—while accepting its double-negation, and we have no reason to accept his explanation of why we mistakenly supposed ∃ to be false. Nevertheless, I think that an important component of his solution may be right. This is that ∃ presents a quandary, and is thus indeterminate. I'll try to explain.

Wright began his approach to the sort of sorites SI presents by taking it to be a datum beyond dispute—"merely common sense"[33]—that the sorites premiss was false, and thus that DN (¬¬∃n[¬R(n) & R(n + 1)]) was true. But then one was confronted by the classically valid inference from DN to ∃, and by the fact that the only ways of making sense of ∃'s being true seemed unacceptable. There was then no wiggle room left in which to maneuver: if one had to accept DN but couldn't accept ∃, one was forced thereby to agree with the intuitionist that DNE wasn't valid, and thus to deny that ∃ was entailed by DN. The trouble is that that intuitionistic move needs to be sustained by an

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[33] Wright (2003b), 99.

explanation that progresses beyond the bind of finding DN but not ∃ acceptable, and it's precisely Wright's attempt to provide that explanation that has been called into question. My suggestion isn't that there is some other explanation to sustain the intuitionistic response; it's that one shouldn't accept that the sorites premiss, ¬∃n[¬R(n) & R(n + 1)], is false, and thus shouldn't accept its negation, DN. Rather, one should agree with Wright that ∃ is indeterminate, but disagree with him about the falsity of its negation— one should hold that ∃ is indeterminate in that it's indeterminate whether or not it's true and indeterminate whether or not it's false. (This doesn't, however, mean that one should be "agnostic" about the sorites premiss, as though it might turn out to be true; being agnostic about a proposition means *s*-believing it to more or less the same degree that you *s*-believe its negation, and *s*-believing it to any positive degree is precluded by your taking it to be indeterminate.)

The rub—for me—is that if one takes SI's sorites premiss to be indeterminate, then, in the sense of validity according to which an argument is valid only if it's metaphysically impossible for its premises to be true and its conclusion false, one will also have to say that it's indeterminate whether or not SI is valid, since it's indeterminate whether it has true premises and a false conclusion (I'm assuming that SI's first premiss is determinately true and that its conclusion is determinately false). To make matters worse, one will also have to say that it's indeterminate whether modus ponens is valid. For consider the very long sorites inference SI′:

> R(5,000,000,000)
> R(5,000,000,000) → R(4,999,999,999)
> R(4,999,999,999) → R(4,999,999,998)
> ∘
> ∘
> ∘
> ∴ R(2)

This inference is valid if modus ponens is a valid rule of inference, but if I'm to say that SI's sorites premiss is indeterminate, then I shall also have to say that each conditional premiss of SI′ is indeterminate if it isn't determinately true, and of course the first

premiss—that a person with $50 million is rich—is determinately true, and the conclusion—that a person with only 2¢ is rich—is determinately false. How terrible is this?

In saying that it's indeterminate whether modus ponens is valid—in the sense of 'valid' according to which it applies to an inference only if it's metaphysically impossible for it to have true premisses and a false conclusion—I'm not saying that I *doubt* that modus ponens is valid, as though its turning out to have counterexamples were an epistemic possibility. Doubt and epistemic possibility require SPBs, and they are precluded when one takes a proposition to be indeterminate. It *isn't* epistemically possible that, or an "open question" whether, an instance of modus ponens should have true premisses and a false conclusion. Nor is my claim that it's indeterminate whether modus ponens is valid *in the stipulated sense of 'valid'* inconsistent with its being valid in some other sense. For example, in Hartry Field's recent Kleene-enhanced logic he recognizes three notions of validity, which he calls *validity*, *strong validity*, and *universal validity*.[34] Modus ponens in his logic satisfies all three notions of validity. Nevertheless, Field shares my view that SI's sorites premiss is indeterminate and that the conditional premisses in the just-displayed long inference are indeterminate when not determinately true.

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In this discussion of Wright's theory of vagueness I have been critical of his attempt to resolve the sorites along intuitionistic lines, and I have been critical of his account of quandary. At the same time, I think his theory is an important step forward on this extremely difficult problem. His objections to supervaluationist and epistemicist theories of vagueness are by my lights spot on, and, more importantly, I think he is correct that vagueness needs to be explained in terms of the sort of quandary state one is in when one takes a proposition to be borderline.

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[34] Field (2003).

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