A Reply to Critics

ROY SORENSEN
Dartmouth College

My précis of Vagueness and Contradiction ran from the book’s beginning to its end. My reply runs from the book’s end to its beginning.

The no-no paradox
Graham Priest agrees that there is a connection between the sorites and the no-no paradox. This is the only paradox I know of that is kept in circulation partly through slips of the tongue. At the Bertrand Russell Archives, there is a handwritten note:

G. G. Berry, the writer of the following letter, was a man of very considerable ability in mathematical logic. He was employed in a rather humble capacity in The Bodleian, his subject being one which the University of Oxford ignored. The first time he came to see me at Bagley Wood he was bearing, as if it were a visiting card, a piece of paper on which I perceived the words: “The statement on the other side of this paper is false.” I turned it over & found the words: “the statement on the other side of this paper is false”. We then proceeded to polite conversation. (Quoted by Garciadiego 1992, 166)

Russell’s note is evidence that Berry is the true inventor of “Jourdain’s Visiting Card Paradox”. It also illustrates Russell’s vice of mis-stating this looped liar. Russell presents just the botched version, the no-no paradox, in the 1951 edition of his autobiography. The error is corrected in the second printing of the 1967 edition but re-appears in the 1971 paperback. Patrick Hughes and George Brecht (1975, 10) speculate that the mistakes may be due to Russell’s disgust with the paradoxes. But lovers of paradox make the mistake with the frequency predicted by psycholinguistic research on slips of the tongue.

P. E. B. Jourdain’s (1913) charming introduction to the Visiting Card paradox uses the no-no as a stepping-stone to the looped liar. He observes that the only consistent interpretation of the sentences gives them opposite truth-values. The symmetry of the sentences makes it arbitrary to conclude that one is true while the other is false.

The truth-teller, “This sentence is true”, is in turn a precedent for the no-no. In the liar paradox, there is a shortage of consistent truth-value assign-
ments. In the truth-teller, there is an embarrassment of riches: assigning a T works just as well as assigning an F.

One might try to solve the truth-teller by making one truth-value the default truth-value. (But which?) Or one might deny the truth-teller has any truth-value. These solutions do not extend to the strengthened no-no:

1. Sentence 2 is not true.

2. Sentence 1 is not true.

My solution to the truth-teller postulates a truthmaker gap. The only way to explain a contingent proposition is through a connection with a portion of reality that makes it true. But this does not entail the truthmaker principle that each contingent proposition owes its truth-value to a portion of reality. The truth-teller is a counterexample to the truthmaker principle. It is either true or false but there is no telling which.

The truth-maker gap solution extends to the no-no. The sentences of the no-no paradox have different truth-values despite their symmetry. Nothing is responsible for the difference in truth-values. The law of bivalence says every proposition must have a truth-value. But there is no restriction on how the proposition gets that truth-value.

Graham Priest characterizes the assignment of different truth-values to symmetrical sentences as “a manifest a priori repugnance”. But the logician must hold his nose and frame all the possibilities.

Priest’s symmetrical solution to the no-no is that the sentences are both true and false. This is an example of what I call “revising logic”. Pierre Duhem pointed out that a scientist can protect a hypothesis from disconfirmation by revising background assumptions. Duhem (1904, 31) denied that disconfirmation could be deflected on to the mathematical reasoning that governs the process of disconfirmation. Priest is more open-minded than Duhem. As a dialetheist, he thinks that there are true contradictions. In the (fully dilated) eyes of the dialetheist, reductio ad absurdum dogmatically forecloses some live options.

Constrictions of classical logic have a poor track record. Priest is right that there has been much progress in logic. But this progress is almost entirely by addition, not subtraction. In terminology I borrow from Susan Haack’s Deviant Logic, classical logic is inadequate in that it fails to endorse many valid inferences. A supplementary logic addresses these omissions by increasing the stock of valid inference rules. A deviant logician either refuses to accept a classical theorem (like intuitionist demurring on double negation) or rejects a classical theorem (the fuzzy logician rejects almost all classical theorems). The general technique of the supplemental logician is to introduce a new logical word. For instance, modal logicians
treat ‘necessary’ as a logical word. Deontic logicians treat ‘permissible’ as a logical word. Supplemental logic is irrelevant to the sorites because the argument is classically valid. The only hope of invalidating the sorites lies in deviant logic.

In Blindspots, I noted that every classical rule of inference that we have bothered to name has been challenged in print by well-trained philosophers (not cranks). These challenges have stimulated better theories about how to apply logic (such as Grice’s theory of conversational implicature). The response has rarely been to repeal accepted inference rules. Since the sorites requires so little logic, it can only be rendered invalid by a revolutionary retrenchment. Standard logic (the first order predicate logic with identity taught by logic instructors all over the world) would have to be dramatically overextended. It is not.

**Woodbridge and Armour-Garb’s asymmetric cases**

James Woodbridge and Bradley Armour-Garb agree that a truth-value gap solution to the no-no will not work. However, they understate my antipathy to a truth-value gap solution to the liar paradox. I regard the liar sentence ‘This statement is false’ as meaningless. I endorse the principle of bivalence: every proposition has a truth-value (true or false).

Sadly, the meaninglessness of liar sentences is sometimes contingent. If I say ‘The next thing you say is true’ and you say something with a truth-value, then my utterance will take on the same truth-value. But you could sabotage my utterance by saying it is false. My utterance would then fail to express a proposition. I might have been ever so reasonable in predicting you would utter a truth. So the meaninglessness is compatible with me being rational by any internal standard. The meaninglessness is undetectable from my (narrow) psychology.

Two sentence tokens of the same type in the same context can differ radically in their semantic status:

1. Sentence 1 is not true.
2. Sentence 1 is not true.

Sentence 1 is meaningless. Sentence 2 is true. This is “a manifest *a priori* repugnance”. But many students of the Liar have learned to live with this ugly asymmetry. Logic is not a beauty contest.

In Vagueness and Contradiction I argue that we should minimize truth-bearer illusions. Each illusion cuts into the applicability of logic to reasoning. Each illusion is a step toward elitism about propositions. Each truth-bearer illusion takes a little bite out of bivalence’s scope. I therefore admon-
ish Laurence Goldstein for unnecessarily postulating a truth-bearer illusion to handle the no-no paradox.

Woodbridge and Armour-Garb strengthen my rejection of symmetry constraints by formulating asymmetric problems of arbitrariness:

(5) (6) is false.

(6) (6) is false → (5) is false.

There are exactly two consistent assignments of truth-values; letting (5) be true and (6) false, and vice versa. If Goldstein and Priest want to treat (5) and (6) alike, then they must find a rationale other than structural symmetry.

Analytic philosophers announce good news only when they have some bad news to balance the message. Accordingly, Woodbridge and Amour-Garb allege that my solution has a revenge problem with

(7) (8) has no truthmaker.

(8) (7) has no truthmaker.

However, they only cleanly exclude the F-F assignment of truth-values. The other assignments are still viable.

Consider the option of assigning opposite truth-values. If (7) is true and (8) is false, then (7) has a truthmaker. Woodbridge and Amour-Garb object that it is utterly indeterminate which has the truthmaker. But what is so bad about that?

There would be a problem if the existence of a truthmaker were a sufficient condition for being knowable. For then (7) would be knowably true. Knowledge of (7) would put the knower in a position to infer that (8) is false. One proposition would be knowably true while the other is knowably false. The symmetry of (7) and (8) precludes this epistemically asymmetric outcome.

But having a truthmaker is only a necessary condition for knowability. If (8) is unknowable (because it has no truthmaker) then its perfect resemblance to (7) renders (7) unknowable. Having planted the seed of absolute unknowability through a truthmaker gap, we can grow further unknowables amongst neighboring truths that do have truthmakers.

Ignorance can spread without perfect symmetry. For instance, Woodbridge and Armour-Garb’s other pairs, (9)-(10) and (13)-(14), feature structurally asymmetric sentences that are still epistemically symmetrical.

I chose the expression ‘truthmaker gap’ to highlight resemblances with truth-value gaps. But there is a major structural disanalogy. For the supervaluationist, there is a truth-value gap corresponding to each indeterminacy. For the truthmaker epistemicist, only the basic indeterminacies have truth-
maker gaps. Knowledge is sensitive to the deviancy of truthmaking chains, to the existence of uneliminated alternatives, and to information about the completeness of these alternatives. Consequently, one truthmaker gap can render many propositions (that do have truthmakers) absolutely unknowable.

The correspondence between truthmaker gaps and indeterminacies also has a minor failure in the opposite direction. On page 167 of Vagueness and Contradiction I allow for the possibility that some ungrounded sentences can be true by virtue of formal considerations. Consider the two sentences on list A:

The sentences on list A have the same truth-value.

The sentences on list A have the same truth-value.

The only consistent assignment of truth-values is T-T, so that must be the correct assignment. T-F assignments for the "revenge" no-no are as acceptable as for the original no-no. So suppose Woodbridge and Armour-Garb came up with a formal refutation of the T-F assignments. That very refutation would become a premise for the back-up position of declaring the T-T assignment correct by a process of elimination.

I even have a back-up to this back-up. Suppose Woodbridge and Armour-Garb somehow go on to eliminate the T-T assignment. (A T-T assignment can be eliminated by adding 'and the other statement is false' to (7) and (8).) That refutation would give me the second premise needed to activate my last resort: declaring (7) and (8) meaningless. After all, if the pair is meaningful, there is some way to consistently assign them truth-values. If there is no such way, then these sentences must get the same "last ditch" treatment as the liar paradox.

A contingent analytic response to Dorothy Edgington

Any proposition that does not owe its truth-value to the world is analytic. So unmade propositions (ones that lack truth-makers or false-makers) are analytic. Yet they are also contingent. There are possible worlds that have the same truth-makers and yet which differ in that the unmade proposition is true in one and false in the others. Therefore, all unmade propositions are contingently analytic.

If we restrict our attention to made truths, analyticity is a recessive property; the conjunction of an analytic truth and a synthetic truth is a synthetic truth. But the conjunction of an unmade truth and synthetic truth is an unmade truth. So the hybrid is (contingently) analytic. These molecular truths have many of the stereotypical features of synthetic truths (empirical testability, existence commitment, etc.). After all, they entail synthetic
truths. *Atomic* unmade truths bear a stronger resemblance to stereotypical analytic truths.

The correspondence theory of truth has trouble digesting analytic propositions (Hugely and Sayward 1999). An analytic truth does not say anything about how things are. So how can it be true?

If a proposition is about what makes it true, then what are analytic statements about? Everything? But "To be about everything is to be about nothing."

To be informative, a proposition must discriminate. An analytic truth is compatible with every state of affairs. So how can it be informative?

One might claim that the underlying problem is with necessity. But atomic unmade truths show that a contingent truth can have the same problems of truth, aboutness, and informativeness. Unmade truths violate the principle that truth supervenes on being. If what is the case is restricted to the sum of all truthmakers, then unmade truths fail to satisfy the principle ‘A sentence is true if and only if it says what is the case’. If a truth is about what makes it true, there is nothing for an atomic unmade truth to be about. If a truth is informative only if it discriminates between substantive states of affairs, then atomic unmade truths are uninformative.

Philosophers have reacted to these problems by characterizing analytic statements as pseudo-propositions, by denying that they have truth-values, and by stressing their emptiness and triviality. Only after 1920 did it become orthodox to count analytic statements as genuine propositions (Dreben and Floyd, 1991).

The truthmaker epistemicist sees an opportunity to consolidate mysteries. Our troubles with absolute borderline cases resemble our troubles with analytic statements. Diagnosis: Indeterminate statements are a species of analytic statements. If 12:15 is the last noonish minute, then there is an almost perfect symmetry between the truth ‘12:15 is noonish’ and the falsehood ‘12:16 is noonish’. We cannot conceive of anything that could make the first statement true and the second statement false. Explanation: There is nothing to conceive. The truthmaker epistemicist draws an analogy with the no-no paradox. He says that there is a truthmaker gap. If 12:15 is the last noonish minute, then ‘12:15 is the last noonish minute’ is a contingent analytic truth.

When the truthmaker epistemicist says ‘12:15 p.m. is the last noonish minute’ a challenger may demand ‘Contingent on what?’ His reasoning is that since contingency is a two-place relation, and ‘12:15 is the last noonish minute’ is not contingent on anything, it is not contingent.

‘Contingent’ is a multi-grade predicate like ‘leans’. ‘Alvin leans’ is symbolized as ‘La’. ‘Alvin leans on Bob’ is symbolized ‘Lab’. You cannot refute
'Alvin leans' by asking 'Leans on what?'. You cannot refute '12:15 is noonish' is contingent by asking 'Contingent on what?'

In modal logic, 'contingent' is used chiefly in a single degree fashion. So philosophers generally abide by Leibniz's metaphysical definition of contingency: a proposition is contingent exactly if it is true in a possible world and false in other possible worlds. The truthmaker epistemist's use of 'contingent' is completely standard.

If 'Fifteen minutes after noon is the last noonish minute' is true, then it cannot be a synthetic truth. Could it be made true by conventions or concepts or some other portion of reality? If so, what would preclude us from learning the threshold for 'noonish'? If it is just a question of complexity, then vagueness becomes relative to a cognizer. To preserve the absoluteness of borderline cases, the truthmaker epistemist answers that there is no truthmaker for the threshold statement. If there is no piece of reality controlling the truth-value of a contingent statement, then there is absolutely no way to know its truth-value.

A comparison with other notions of contingent analyticity

'Contingently analytic' sounds like a contradiction in terms, so one might think that I would have the phrase all to myself. However, there are three alternative notions of contingent analyticity.

A. Leibniz's indemonstrables

Leibniz believed that a substance is a bundle of properties. So a complete concept of an individual ensures that any subject-predicate sentence that denotes the individual will be analytic. Leibniz believes all relational sentences are reducible to subject-predicate sentences. He concludes that all statements are analytic. Leibniz then senses a problem: If analyticity entails necessity, there is no free choice. Leibniz counters this threat by denying that all analytic truths are demonstrable. Leibniz thinks necessity entails demonstrability because of his logical definition of 'necessity': a statement is necessary if and only if its negation entails a contradiction. According to Leibniz, 'Socrates is wise' is analytic because the predicate is contained in the subject. Yet there is no entailment because the predicate cannot be derived in finitely many steps. Even God cannot complete the infinite analysis because there is no terminal element in an infinite series. (God can get ever closer, just as He can get ever closer to 0 when following out the series 1/n.) Since these analytic statements are not demonstrable, they are contingent.

Empiricists do not believe that all truths are analytic and so think that there is no problem to begin with. After Kurt Gödel proved the incompleteness of arithmetic, many empiricists also thought Leibniz's "solution" mistakenly assumes that all necessities are demonstrable.
Gödel’s result refuted the logicist’s thesis that mathematics is reducible to a system of tautologies. The empiricist’s only resource for explaining necessity was through analyticity. So the demise of logicism disinterred a major anomaly for empiricism.

The empiricist’s trouble with necessity is echoed in a triviality result about truthmakers. The entailment principle for truthmakers says that if a truthmaker makes a proposition true, it also is a truthmaker for any of that proposition’s entailments. Any proposition entails any necessary truth. Therefore, any truthmaker is a truthmaker for any necessary truth.

Just as the rationalist Leibniz has trouble making room for contingency, empiricists have trouble making room for necessity. John Stuart Mill reacted by characterizing mathematical statements as highly confirmed empirical generalizations. He believes ‘2 + 2 = 4’ is synthetic a posteriori. Mill’s view is hard to square with the absoluteness of mathematical statements. We are rationally insensitive to empirical disconfirmation of arithmetical statements. When I add 2 and 2 and do not get 4, I always conclude that I miscounted or misperceived. I never lower my confidence in ‘2 + 2 = 4’. Open-mindedness here just brings ridicule.

I am tempted to develop an analogy of rational closed mindedness about arithmetical statements and rational closed mindedness about borderline statements. But I shall refrain in order to continue my survey of contingent analyticity.

B. Contingent meaningfulness

The quantifiers of *Principia Mathematica* have existential import. For instance, the law of identity (x)(x = x) entails (3x)(x = x). So if the empty universe is possible, then the law of identity is only contingently true. N. L. Wilson (1954) labors to secure the law a kind of transcendental necessity. He denies the law can be false because if there were nothing, then the statement would be meaningless. On his account, the law of identity is contingently meaningful. He does not want to count the law of identity as a synthetic truth. So Wilson seems committed to contingent analyticity.

Other sentences with existential import appear to be contingently meaningful:

9. Neptune is the planet responsible for the perturbations of Uranus.

10. Vulcan is the planet responsible for the perturbations of Mercury.

Urbane Leverrier used these sentences to stipulate what these names denote. The stipulation misfires if the definite descriptions fail to pick out a referent. So if the sentences are meaningful, then they are true by virtue of their meaning.
In these cases, the contingency is about whether the statement has meaning. In the next cases, the contingency is about which meaning a statement has.

C. Dual bearers of meaning

Commentators on quotation have been impressed by the contingent aspects of sentences such as:

11. Socrates is named ‘Socrates’.

12. ‘Cat’ refers to cats.

13. ‘Snow is white’ is true if and only if snow is white.

Socrates could have been named ‘Aristocles’. Yet sentences of the form “‘N’ is named N” seem to be true in virtue of their meaning. Here it is tempting to attach analyticity to the sentence type and contingency to what is expressed with the help of that scaffolding.

David Kaplan (1989) employs this strategy in his work on demonstratives. He regards ‘You are the addressee of my utterance’ as contingently analytic. In his terminology, the character of the statement ensures that the content is a true. Thus the character is analytic while the content is contingent. According to Kaplan, Descartes’ cogito is contingently analytic.

Ori Simchen combines Kaplan’s theory with Davidson’s demonstrative theory of quotation. He characterizes a wide range of sentences, including (11)-(13), as contingently analytic. Simchen’s approach encompasses the issues of contingent meaning raised by Hilary Putnam’s curious proof that he is not a brain in a vat.

The general lesson is that there are sentence types that necessarily express true sentence tokens without those tokens expressing necessities. This lesson is irrelevant to the type of contingent analyticity exhibited by unmade truths. Unmade truths involve a single bearer of meaning. The contingency is not with respect to which meaning the statement has or whether the statement has meaning. Nor is the contingency a Leibniz style allusion to indemonstrability.

Understanding misunderstanding

Graham Priest is puzzled by my theme that understanding requires some misunderstanding. I say speakers must accept tolerance conditionals to understand ‘noonish’. Yet I deny that the meaning of ‘noonish’ makes each of the tolerance conditionals true. Indeed, I say that the meaning of ‘noonish’ ensures that (exactly) one of the tolerance conditionals is false. Am I in trouble with truth conditional semantics?
To understand a sentence is to know the circumstances under which it is true. To understand a predicate is to know the conditions under which that predicate produces a true sentence. So to understand ‘noonish’ you have to know the truth conditions for ‘noonish’. But a competent speaker does not need perfect knowledge of the truth conditions.

Many people who understand ‘noonish’ have analytically false beliefs about what is noonish. For instance, some speakers believe ‘12:00 a.m. is noonish’ while others believe ‘12:00 p.m. is noonish’. More cautious speakers hedge and utter a sentence they take to be a tautology ‘Either 12:00 a.m. is noonish or 12:00 p.m. is noonish’. But all these beliefs, even the hedged remark, are analytically false. The initials ‘a.m.’ abbreviate the Latin phrase ante meridiem, which means ‘before noon’ and the initials ‘p. m.’ abbreviates the Latin phrase post meridiem, which means ‘after noon’. Noon is neither a.m. nor p.m.

Poorly educated speakers believe that if it is noonish where they are, it is noonish everywhere. Their failure to relativize is lamentable but they still understand ‘noonish’.

Lastly, consider singularities: Is it ever noonish at the North Pole? Speakers who are knowledgeable about time zones fall into dispute. Some say yes; the North Pole is not a timeless wonderland! Others say that ‘noonish’ is undefined for the North Pole. The disputants cannot all be right.

One can understand ‘noonish’ while denying tautologies that turn on the meaning of ‘noonish’. Speakers are only required to know enough of the truth conditions. There are behavioral signs that the speaker satisfies this quota. First, the speaker can analyze ‘noonish’; he recognizes the -ish in ‘noonish’ is a suffix that turns a noun into an adjective and so is not like ‘ish’ in brandish, flourish, or punish. Second, the speaker can paraphrase sentences containing ‘noonish’. Third, he can make inferences to and from these sentences. Finally, if he is bilingual, he can translate sentences containing ‘noonish’.

The tolerance heuristic is indispensable in satisfying the quota of truth conditions for ‘noonish’. Without it, speakers could not cope with limits of perception, memory, and inference. So to check whether someone has mastered ‘noonish’ we check whether he applies the tolerance heuristic.

The tolerance heuristic is fallible. The systematic nature of its errors is made manifest by the sorites. Each speaker realizes that if he applies the heuristic too often, he will end up with an absurd conclusion.

Many misunderstandings are side effects of linguistic development. For instance, children who use irregular verbs correctly will overregularize them after they have an (unconscious) epipheny about the suffix -ed (Bowerman 1982). They stop saying sang, went, and heard, and start saying singed, goed, and heard. Overregularization is an inevitable side effect of tense mastery. The errors are temporary because children learn exceptions.
What happens when children learn a rule but cannot learn the exceptions? If the exceptions are rare and the cost of error is low, their learning curve will plateau at a suboptimal level. This is my reading of the suffix -ish. When applied to a precise predicate such as ‘noon’, -ish calls up a tolerance heuristic that says that if x is G-ish, you may extend G-ish to any y that closely resembles x. The tolerance heuristic is locally incorrigible. None of its particular applications can be disproved. However, the heuristic is not globally incorrigible. We can prove that there is at least one false application of the heuristic. All we need to do is to apply the rule recursively until we reach a paradigm non-G. We then have decisive, indirect evidence of error. We can know there are exceptions but cannot know the exceptions.

Heuristics are just rules of thumb that license an inference. They are not descriptions and so are neither true nor false. Consider the grammatical heuristic “First interpret ‘man’ as a noun”. Most occurrences of ‘man’ are nouns, so the heuristic usually leads to a correct parsing. In the absence of any further information, it is rational to always guess in accordance with the highest base rate (even though this policy dooms you to some errors). When the (unconsciously) savvy speaker plays the odds with ‘The old man the boats’, the heuristic causes a rare misunderstanding. A patient listener will re-analyze the sentence by parsing ‘man’ as a verb. Other garden path sentences (such as ‘Since Graham always jogs a mile seems a short distance’) cause hearers to falsely conclude that the sentence is meaningless.

To learn -ish, you have to employ the tolerance heuristic. You cannot learn all the tolerance conditionals by rote. Like other semantic rules of thumb, the tolerance heuristic will cause you to believe some analytic falsehoods. Unlike other heuristics, the feedback on the errors is never direct.

The tolerance heuristic is also atypical in that the misunderstandings are universal. There are no experts who can curb our excesses. The expert can deduce that there is an error, that is, a sharp line between the noonish and non-noonish times. But the existence of the line will conflict with natural assumptions about how such divisions come about. Even the experts will have second thoughts about the argument for sharp thresholds.

At dinner parties, Lewis Carroll asked his guests to imagine someone who circumnavigates the earth in an hour, starting at Monday noon. As the speedy circumnavigator travels east, he puts his clock ahead one hour each 15 degrees longitude to match local time. He circles back 360 degrees and arrives sixty minutes later at 1 p.m. having advanced his clock a whole day. Yet it is still Monday at his point of departure, not Tuesday. Therefore, the speedy circumnavigator must have crossed a line where the day suddenly reverted back to yesterday. Carroll was propounding this argument prior to the creation of the International Date Line in 1878. (The European history of the paradox goes back five hundred years to Nicole Oresme (Sorensen 2003, 213-15)). So his
guests would not concede that a line existed although they agreed that Carroll’s logic seemed to establish that there was a line. The simple argument requiring rejection of the induction step of the sorites induces the same Alice in Wonderland ambivalence. Epistemicists seem to conjure thresholds out of the thin air of logic.

The circumnavigator’s paradox can be formulated as a mathematical induction:

Base step: Traveling 1 x 15 degrees advances the traveler’s time by 1 hour.

Induction step: If traveling n x 15 degrees advances the traveler’s time by n hours, then traveling (n + 1) x 15 degrees advances the traveler’s time by n + 1 hours.

Conclusion: Traveling 360 degrees advances the traveler’s time by 24 hours.

The conclusion would make time relative to people instead of places. To know when a person is you would have to know their history. An eliminativist about time, such as F. H. Bradley, could avoid this relativity by denying the base step of argument. Lewis Carroll rejects the induction step and so accepts the existence of a threshold. The conventions for time telling entail a boundary. Since he thinks that entailment of a boundary is sufficient for its existence, Lewis Carroll is committed to an epistemicist solution to the sorites paradox.

The circumnavigator’s paradox is not a sorites argument because it does not turn on the vagueness of an inductive predicate. Yet it does help us overcome an objection to epistemicism based on an overly narrow view of how boundaries form.

**Edgington’s problem with analytic sorites**

My positive reason for liking analytic sorites arguments is that they isolate the semantic forces that drive the meta-sorites paradox.

My negative reason for liking analytic sorites arguments is that they expose weaknesses in rival theories. For instance, Bertrand Russell suggested that the sorites arose from the friction between the Platonic realm of abstraction and the rough edges of concrete reality. But analytic sorites arguments are entirely abstract.

Probabilists say that they can flexibly respond to the sorites by not forming any beliefs about tolerance conditionals. Their precedent is the lottery paradox. Each statement of the form ‘Ticket n is a loser’ has a high probability. If high probability licensed belief, we would be permitted to believe of each ticket that it is a loser while also believing that not all the tickets are losers. To avoid countenancing inconsistency, the probabilist forbids us to
believe any uncertain statements. We must instead assign a degree of belief. This quantitative notion of belief evolved from the qualitative notion of belief just as the quantitative notion of temperature evolved from the qualitative notion of heat. The probabilist pictures belief as a qualitative dinosaur in a quantitative age.

The probabilist loses flexibility in analytic domains. The probability calculus requires him to assign a probability of 1 to tautologies and a probability of 0 to contradictions. If he is sure that a statement is either a contradiction or a tautology but unsure which, then he can be sure that he is assigning a probability that is either too high or too low. For that uncertainty means he is assigning a probability higher than 0 but less than 1.

The probabilist's difficulties with analytic sorites arguments are inherited by Dorothy Edgington's (1996) variation of many-valued logic. She diverts the probability calculus into service as a reckoner of degrees of truth. Her non-standard brand of this non-standard logic is intended to preserve all the classical tautologies.

But what about the conceptual tautologies in the noonish sorites? In the noonish sorites, we commence with a clear tautology, traverse borderline tautologies, and reach a clear contradiction. What degree of truth can Edgington assign to borderline tautologies? She is stuck with 1's and 0's. If Edgington assigns a number other than the extreme values of 1 and 0, then either the statement is true and yet has a partial degree of truth or the statement is false and yet has a partial degree of truth.

The probabilist has trouble explaining changes of mind about analytic status. For instance, Edgington (1996, 310) accepts the dictionary definition of 'sibling' as meaning 'brother or sister'. So she should assign a probability of 1 to 'All siblings are brothers or sisters'. The probability calculus implies that no amount of evidence can change her mind. Yet she might change her mind after learning that there are organisms, such as green algae, whose sex cells are of uniform size. Biologists define 'female' as the gender that produces the larger sized gametes and 'male' as the gender that produces the smaller sized gametes. The biologists conclude that isogamous organisms lack genders. This commits the biologists to believing that there are siblings that are neither brothers nor sisters. Edgington may not find this reasoning decisive but it is good enough to warrant a decrease in confidence in 'All siblings are male or female'. How can Edgington account for her open-mindedness? The question is pressing because every analytic sorites involves an insensible transition in analytic status.

I get the impression that Edgington wants to deny the existence of analytic sorites arguments. She notes that a valid chain argument that begins with a tautology and ends with a contradiction might owe its unsoundness to an intermediate conditional that is an empirical falsehood. So unless the
noonish sorites argument is composed solely of analytic premises, I was too quick to infer that it has a contradictory premise (let alone my stronger claim that it has exactly one contradictory premise and all the other premises are tautologies).

My reason for believing that all of the premises are analytic is that all of their component sentences are analytic. After all, no statement of the form ‘n minutes after noon is noonish’ is synthetic. Since the analytic-synthetic distinction is exhaustive, the antecedents and consequents of all the conditionals are analytic. If the antecedent and consequent are analytic, then the conditional is analytic. Therefore, all the premises of the noonish sorites argument are analytic.

Edgington objects that ‘12:23 p.m. is noonish’ cannot be analytic because a competent speaker will neither accept nor reject it. However, this neutrality is just what to expect when the speaker realizes he does not know whether the statement is true. Such a speaker will accept the hedged statement ‘12:23 p.m. might be noonish and 12:23 p.m. might not be noonish’. If the speaker believed he knew that the statement was neither true nor false, then he would not accept the hedged statement (Sorensen 2005). After all, it is contradictory to say ‘12:23 p.m. might be noonish but I know it is not true that 12:23 p.m. is noonish’. As noted by G. E. Moore (1962, 187) and accepted by all subsequent commentators on epistemic possibility, knowledge of non-actuality entails epistemic impossibility.

The compatibility of neutrality about S with belief in the analyticity of S can also be illustrated with logic tests. Some instructors give their students a mixture of tautologies and contradictions and ask their students to sort them. When the student confronts a hard case, he knows that the statement is either a tautology or a contradiction but he neither accepts nor rejects the statement.

The student’s predicament underscores the futility of trying to avoid inconsistent belief by sticking to probabilities. If the student fails to assign a probability of 0 to a contradiction, he violates the probability calculus. So if the student knows that the statement is analytic but is not sure whether it is a tautology or a contradiction, then he can be sure that his intermediate probability assignment is, either too high or too low.

Analyticity does not entail knowability. Analyticity is merely the failure of the world to control the truth-value of the statement. Absence of worldly control is compatible with control by semantic factors that are not completely knowable. Absence of worldly control is also compatible with the absence of any control.

These agnostic alternatives were precluded by traditional conceptions of meaning. Most philosophers regarded meaning as transparent; if the speaker means p, then he knows he means p (or at least he could know it).
The truth-value of every statement is at least partly controlled by its meaning. Statements vary in how much these semantic features do the job. Underspecific statements leave little work for the world. Analytic statements are the extreme case in which the world has nothing to do. That is why we can discover the truth-value of many analytic statements without any empirical inquiry.

As an illustration, consider Graham Priest’s claim that classical logic used to be deviant logic. I follow Haack’s lead and define ‘deviant logic’ to be a logic that rejects a classical theorem. Classical logic cannot reject one of its own theorems, so it is a contradiction to say that classical logic was once a deviant logic. Priest would protest that he has been uncharitably accused of a contradiction. He was using ‘deviant’ to denote a minority view. He will dismiss my claim that classical logic cannot be a deviant logic as an uninformative tautology.

Dorothy Edgington also has an indirect *tu quoque* argument against the noonish sorites being analytic. According to truthmaker epistemicism, there is a conditional in the noonish sorites that is *contingently* false. Edgington reasons that since analyticity implies necessity, at least one premise in the noonish sorites is not analytic.

Edgington’s objection shows that a truthmaker epistemicist must characterize the threshold of noonish as *contingently* analytic. Indeed, her point passes back to my solution to the no-no paradox. Accordingly, the bulk of my reply has been pre-positioned to the previous section (which explored the type of contingent analyticity accruing from truthmaker gaps).

**Why I still count as an epistemicist**

I have attended several lectures in which the speaker reports that I am no longer an epistemicist. The first time I heard the news, I objected that I invented the term and so should know whether I am still an epistemicist.

A lecturer reigned in my sense of paternal authority. I was reminded of my support for semantic externalism. New words are like children. They grow quickly into autonomous beings and may confound their creators.

Dorothy Edgington also questions my epistemicist credentials. She denies that an epistemicist is permitted to give a *metaphysical* explanation of the ignorance. She says that all theories of vagueness get around to explaining the ignorance. Edgington thinks an epistemicist explanation should be confined to epistemological principles.

However, an ignorance theory of almost anything will be based on some metaphysical premises. Ignorance theories of probability use metaphysical premises. For instance, Pierre Simon LaPlace postulates determinism to eliminate the possibility of objective chance.

726 ROY SORENSEN
Strictly speaking, I deny that supervaluationists and other deviant logicians explain the ignorance. They actually replace ignorance with “abnorance” (Axinn and Axinn 1976, 135). I cannot know what lacks a truth-value (supervaluationism) or what is not fully true (many-valued logic) or what is both true and false (paraconsistent logic) or what is ambiguous or meaningless. Abnorance is too destructive an answer to ‘Why are borderline cases unknowable?’ For in addition to blocking knowledge, abnorance also blocks weaker propositional attitudes such as doubt. When I doubt whether 12:23 p.m. is noonish, I am in an appropriate psychological relation with a genuine proposition. That is why I can hedge with ‘12:23 p.m. might be noonish’.

Right or wrong, the metaphysical implications of truthmaker epistemism should allay Edgington’s concern that it is a notational variant of the truth-value gap approach. I am an haecceiticist; there are distinct, qualitatively identical possible worlds. In particular, there are worlds that have the same truthmakers but vary as to which propositions are true in those worlds. Vague identity statements give epistemists a second reason to be haecceiticians (Sorensen 2000). Some of these statements have flanking singular terms so their vagueness cannot be traced to predicates within the proposition. That is a problem for supervaluationists because there is nothing for them to precisify.

Epistemicism is naturally allied with semantic externalism. This makes the epistemicist a friend of direct reference theorists. As David Kaplan argues, those who believe in singular propositions should be haecceiticians.

Supervaluationists do not want their treatment of vagueness to commit them to haecceiticism. Some supervaluationists, such as David Lewis, are anti-haecceiticians. Other supervaluationists insist on a metaphysically neutral solution to the sorites paradox.

There are also two structural differences between truthmaker epistemism and supervaluationism. First, the supervaluationist has a tidy correspondence assigning each indeterminacy a truth-value gap. The connection between indeterminacies and truthmaker gaps is much looser because of the mediation of the knowledge relation. Many propositions that have truthmakers are indeterminate. Some propositions that lack truthmakers are determinate.

The second structural difference is between supervaluationism and any brand of epistemism. Under a semantic view, a statement is true if it comes out true under all of its precisifications. But under an epistemic view, one must know that the list of precisifications is exhaustive. Knowledge is sensitive to a completeness concern. Each planet of the solar system can be known to be larger than our moon without it being known that all the planets are larger than our moon. Consequently, the supervaluationist affirms the Barcan formula for the definite operator while the epistemicist ought to reject it.
Williamson's (1999) inordinate affection for Barcan formulas leads him into a rare error here.

The necessary condition for being an epistemicist is that you be guided by the hypothesis that vagueness is ignorance, not that you end the chain of explanation at ignorance. A sufficient condition for being an epistemicist is being an agnostic about borderline cases who defends classical logic. I am therefore an epistemicist. And you should be one too.

References