VAGUENESS, INDISCERNIBILITY, AND PRAGMATICS
COMMENTS ON BURNS

Achille C. Varzi

Istituto per la Ricerca Scientifica e Tecnologica (IRST)
I-38050 Povo (Trento), Italy

(Published in *The Southern Journal of Philosophy* 33, Suppl. (1995), 49-62.)

I am sympathetic with Ms. Burns' general philosophy of vagueness as a pervasive, multidimensional phenomenon with a variety of sources. I am not, however, all that comfortable with some of the specific arguments she offers in support of this view. In particular, I am uneasy with Burns' central arguments to the effect that the borderline case variety of vagueness—that which produces the sorites paradoxes and puzzles concerning the possibility of higher-order vagueness—is in fact less extraordinary (and less disastrous) than people in the tradition of Michael Dummett and Crispin Wright have alleged. The point is crucial, of course, because it provides necessary grounds for resisting the objection that this type of vagueness is irremediably more "inquiry resistant" than mere informational vagueness. All the same, it seems to me that the proposed treatment involves presuppositions that cannot be taken for granted. My purpose here is to take a closer look at some of these presuppositions, to weigh them against the arguments, and to show that they may—when left ungrounded—undermine much of Burns' general program.

I

Let me try to summarize the basic structure of Burns' treatment of the sorites paradox, which she, of course, takes as paradigmatic of the purported earmark of borderline-case vagueness. As I understand it, it involves three main steps. First, the principle of tolerance and observational match originally indicated by Dummett [5] and Wright [13] as the source of all difficulties is slightly amended to do justice to the apparent multidimensionality of natural language predicates. Whether something is a heap does not depend on just one property, say the number of grains it contains; it also depends on its shape, on its composition, and perhaps on something else as well. Likewise, two people may differ by one single hair and yet instantiate clear cases of the predicates 'bald' and 'hairy' respectively, due to the actual distribution of the hairs on their scalps.

Thus, in general, the sort of tolerance principle needed to construct a sorites argument should require a series to be continuously varying with respect, not to a single determining property, but to a *complete group* of interdependent determining properties:

> [M] Where Φ is the set of determining properties for a predicate *F*, and *a* and *b* are indiscernible with respect to every member of Φ, then if *F* applies to one of the pair it applies to the other also.

This step of the argument is, of course, only hinted at in Burns' paper [4], but we find it fully developed in other works of hers [2, 3]. On this basis, the next step is to reduce every candidate sorites series to what I call an Armstrong triad (after [1]), that is, a triple of items *a*, *b*, and *c* such that the following hold for the relevant property φ:

(i) *a* is indiscernible from *b* with respect to φ;
(ii) *b* is indiscernible from *c* with respect to φ;
(iii) *c* is just discernibly different from *a* with respect to φ.

(It is understood that the relevant notion of indiscernibility should be relativized to a specific observer in a specific context, but for the time being we may assume these parameters to be uniformly fixed.) Finally, the third step establishes that every such triad is sure to involve some relevant discernible difference between adjacent members (even if we keep everything as constant as possible): for, given any property φ, indiscernibility with respect to φ is always sure to be a determining property relevant to the application of any predicate *F* for which φ is a determining property. Thus, given *a*, *b*, *c* as above, there is a relevant difference between *a* and *b* in that one but not the other is indiscernible from *c*; and there is a relevant difference between *b* and *c* in that one but not the other is indiscernible from *a*. It would therefore be a mistake to treat *a*, *b*, and *c* as uniformly indiscernible in the sense required by the amended version of the principle of observational match [M], and it would therefore be illegitimate to extend the application of a predicate *F* from *a* to *b* or from *b* to *c* on the grounds of such a principle. By generalization, it follows that no Armstrong triad—and consequently no full-blown sorites series—can ever satisfy the principle. We can thus conclude that the paradox is harmless: there simply is no way one can come across a sorites series, just as there is no way one can come across, say, a Russellian barber. Such entities cannot exist.

I think the overall structure of this argument is intriguing, and I am ready to go with it. In particular, the first step seems to me to be perfectly fair. Perhaps one could argue that the amendment of the tolerance rules calls for more grounding. A while ago, for instance, Stephen Schwartz [9] objected that if we construe our series as involving a single person gradually losing hair, rather than a sequence of distinct people each with one less hair (or if we traffic in clones rather than different people, to follow a recent suggestion by Roy Sorensen [10]), any hidden complexity of the predicate 'bald' becomes irrelevant. Sorensen [11] also objected that the appeal to multidimensionality is unsupported. For even if we grant that every predicate has various dimensions (by subscribing to some form of "conceptual holism", for instance), it does not follow that every dimension is *relevant* or *determining* in the sense required by [M]. I am not impressed by this line of criticism, though. For as far as we are concerned, the reply lies already in Step 3: the argument only relies on all predicates being at least two-dimensional, and this can be viewed as a matter of necessity if we agree with Burns' ingenious point, that is, if we agree that if a property φ is found to be determining for the application of a given predicate, then so is indiscernibility with respect to φ.

One thing, however, worries me with *this* maneuver (Step 3). For consider a typical Armstrong triad consisting of, say, three color patches *a*, *b*, *c*, and suppose you remove one of the two end members, say *c*. Then *a* and *b* are perfectly indiscernible with respect to color. Suppose further that we applied our predicate, say 'red' (a specific shade of red), to *a*. Shall we still withhold it from *b* on account of the fact that it is *possible* for us to find (or for there to be) a third element *c* that is not red and such that *a*, *b* and *c* form an Armstrong triad with respect to color? This would be a suspicious step into the territory of modal discourse. For that would mean that, in general, there can be properties distinguishing *a* from *b* which are not actually present and which can in no way be established by observation, but which are nevertheless relevant to the application of a predicate like 'red'. Apart from conflicting with the notion of 'red' as an observational predicate, this would put Burns' account under a cloud of suspicion, since it suggests that one never really knows whether two given items that look the same (in the relevant respect φ) do in fact deserve the same observational predicate (for which φ is determining): possible comparisons with possible third items would also matter. Moreover, this appears to conflict with the general program of Burns' paper. For she talks of the indeterminacy of *b* as being describable in terms of equivocation: "the information available to the observer leaves it open which exact shade *b* is" ([4], p. 15). This is what allows her to draw a crucial analogy between informational and borderline case vagueness. But how is the amount of available information to be determined, if all sorts of *possible* situations also matter? How do we know whether the information that is actually available is enough for an observer to apply a predicate like 'red'?

This is an old story, and I suppose Burns would reject these worries simply by emphasizing the context-sensitivity of vagueness phenomena. In the absence of a third element there is no relevant difference between *a* and *b*? Very well, then, there is no relevant difference between *a* and *b*, hence *b* is red after all—so one could argue. It is all a matter of context. In one context (where *c* is absent) we are entitled to call *b* red; in a different context (where *c* is present) we may refuse to do so. There is nothing special with this, just as there is nothing special with the fact that people may not be consistent in their decisions to apply or refuse to apply the same predicate to the same unchanged object over time ([4], p. 17). As Burns put it in her 1991 book, we are just facing "an inevitable consequence of the looseness of fit of observational predicates to the world" ([3], p. 148). The important thing is that when the context involves a smoothly varying sorites series (or an Armstrong triad), the observer is not forced to apply the predicate inconsistently, for *in such a context* an observer would find the relevant differences.

If we are ready to accept this, then I think we are ready to go a long way with Burns' program. Vagueness is no semantic mystery; it is the pragmatics of vague terms and predicates that may involve inconsistent changes in applications. We may also see in a new light the connection between the two varieties of vagueness. But there is some cost too: for a lot of weight is now on the observer's always finding the relevant differences. And this opens the way to what seems to me a deeper line of objection, to which I now turn.

II

The line of objection I have in mind concerns the assumption that the relation of indiscernibility be perfectly sharp. This assumption plays a crucial role in the second step of Burns' argument, since to claim that every potential sorites series is reducible to an Armstrong triad is to claim that there must always be a first item of the series which is discernibly different from an end member, and this is to assume that there must always be a sharp break in terms of the items' indiscernibility from the end members. It is here that I have reservations.

I know Burns is aware of the problem, for she discussed it at length in her other works. Her point seems to be that indiscernibility must possess sharp boundaries insofar as it behaves non-transitively. For instance, in *Vagueness* she makes the claim quite clear:

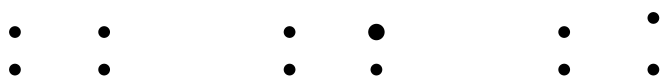
> we may rely upon the commonsense argument that an observer who sees that the end members of a series look different from one another in some respect and judges the first few members to be indiscernible from the initial member cannot go on judging all the succeeding members to be indiscernible from that initial member. They must start noticing a difference from an end member somewhere. ([3], p. 132f)

It is, however, difficult for me to find satisfaction in this explanation, considering that the commonsense argument at issue is precisely what gives a paradoxical flavor to a standard sorites argument in the first place. Why can't indiscernibility yield a similar paradox? What is it that protects it from being tolerant to marginal change just like heaphood or baldness?

Some grounds for answering these questions may be located in an argument of

Dummett's (in [6], pp. 9ff) to the effect that indiscernibility is an observational *relation*, and one cannot make sense of tolerance for relations. In general, that would presuppose finding some means for establishing that if p_j is a pair of things that stand in a relation R, and p_{j+1} is a neighbor pair that is indiscernible from p_j, then the things composing p_{j+1} are also related by R. But how can we characterize the relevant notion of indiscernibility between pairs? Dummett says that we cannot, for "we lack any notion of a perception of a relevant difference between two pairs of objects" (p. 10). Hence, we cannot find any analogue of the tolerance rule for observational relations, and that in turn implies that the relation of indiscernibility (between objects) cannot be tolerant.

This argument is not as strong as it looks, however. For, on the one hand, the claim that we lack any notion of indiscernibility between pairs of objects is not generally obvious. There is a perfectly clear sense in which, for instance, the two pairs on the left (a) of the following picture can be said to be indiscernible (although in reality they may not be exactly alike), whereas the two pairs in the middle (b) and the two pairs on the right (c) involve relevant perceptual differences (in one case with respect to the size of the constituent objects, in the other case with respect to their relative distance).



(a) (b) (c)

On the other hand, in some cases it does not even seem hard to provide a characterization of such a relation of indiscernibility between pairs in terms of qualities of the constituent objects. For instance, suppose R is the relation 'close to', and consider the relation I that holds between two pairs p_j and p_k when the distance between the two constituents of p_j looks the same as the distance between the two constituents of p_k. Then I qualifies as a suitable relation of indiscernibility between pairs with respect to the relative distance of their constituent objects. (Thus, the two pairs in figures (a) and (b) above would be indIscernible in this sense, while the pair in (c) would not.) This is the primary determining property for the application of R. And, in fact, we can immediately construct a sorites series taking us from a pair of objects that are definitely close to each other to a pair of objects that are definitely not close. The observational relation 'close to' is tolerant to marginal change.

So, in general, it is not true that one cannot make sense of a relation of indiscernibility between pairs (or n-tuples, for that matter) of objects. The point that really interests us, though, is whether anything like this can be done when the relation R that may or may not hold between the objects is itself a relation of indiscernibility (in some relevant respect φ). Can we make sense of an "external" relation of indiscernibility between pairs with respect to an "internal" relation of indiscernibility between their constituents with respect to a given property φ? I see two cases, depending on whether we follow Burns in assuming the existence of an Armstrong triad relative to φ.

If we do not make the assumption, then again I see no difficulty in providing an indirect characterization of the external relation between pairs in terms of qualities of the constituent objects, as we did above. The obvious candidate is to certify two pairs indiscernible just in case their respective constituents are indiscernible with respect to φ (φ-indiscernible for short), i.e., just in case each constituent of the first pair is φ-indiscernible from the corresponding constituent of the second pair. Of course, this would eventually clash against the intuition that φ-indiscernibility should in general not be transitive. For given any triple *a*, *b*, and *c* such that *a* is φ-indiscernible from *b* and *b* from *c*, the pairs *a*, *b* and *a*, *c* will come out indiscernible by the above construction; and if φ-indiscernibility is to be tolerant, this means that *a* and *c* will come out φ-indiscernible as well. On the present assumption, however, this cannot be an argument against the proposed characterization. Surely we do not want φ-indiscernibility to behave transitively. But the reason why we do not want it to behave transitively is the same reason why we do not want a man with a million hairs to qualify as bald. We have to explain *where* the transitivity goes wrong, just as we have to explain where the tolerance of 'bald' gets us into trouble.

To put it in other terms, of course φ-indiscernibility is *globally* non-transitive; but locally it may very well behave transitively unless we assume it to be sharp, which is what one does when one argues that every potential sorites series is reducible to an Armstrong triad. (We may recognize here a general source of trouble. Think of a Moebius strip: each portion is two-sided, hence perfectly standard; it is the global topology that is peculiar.) Now this feature (global non-transitivity *versus* local transitivity) is the relational analogue of the sorites feature of vague predicates (gobal discriminability *versus* local tolerance to marginal change). And, in fact, if we keep one of the two relata fixed so as to shift from a binary relation to a monadic predicate, we can reduce the former to the latter case. To illustrate, let *h* be a small heap of sand (consisting of, say, a thousand grains), and construct an apparently continuous sequence h_0, …, $h_{1,000,000}$ as follows:

(i) $h_0=h$

(ii) for all $j \geq 0$, h_{j+1} is obtained from h_j by adding one grain of sand.

(It is not necessary that the grain addition be made in such a way as to preserve heaphood, so we need not bother about the fact that 'heap' is vague. In fact, the example can easily be adapted to arbitrary objects.) Then we can construct the following familiar-looking argument:

h_0 is indiscernible from h.
For all $j \geq 0$, if h_j is indiscernible from h, then so is h_{j+1} .

Ergo, $h_{1,000,000}$ is indiscernible from h.

This is, of course, where Burns and Dummett would say that the induction must eventually come to a halt. But why? Why then not just argue *in the first place* that we must eventually come to a halt in applying 'heap' or 'bald' in a standard sorites argument?

We are thus left with the need to assume the existence of an Armstrong triad for φ. (Indeed, Burns' position in this regard involves quite strong empirical assumptions. For she needs to assume that there is such a triad for *every* property φ that can be a determining property for some observational predicate *F*. That is, one needs an Armstrong triad for things matching in color, one for things matching in baldness, one for things matching in height, in age, in length, and so on.) Now, if we follow her in making such assumptions, then the construction of external indiscernibility considered above will not do. However, this need not imply that we cannot make any sense of the relation. In fact, precisely our assumptions force us to admit that there is a sense in which two pairs can be said to be discernible or indiscernible from each other. For if *a*, *b*, *c* is an Armstrong triad, the very fact that *a* is φ-indiscernible from *b* but not from *c* should guarantee that the pairs ⟨*a*, *b*⟩ and ⟨*a*, *c*⟩ are *not* indiscernible, and we could likewise agree that the pairs ⟨*a*, *b*⟩ and ⟨*b*, *c*⟩ *are* indiscernible. This, of course, does not by itself justify the objection that φ-indiscernibility may be tolerant. The example is already assuming everything there is to be known about *a*, *b*, and *c* with regard to φ-indiscernibility, and there would be no point in arguing, for instance, that since *a* and *b* are φ-indiscernible and ⟨*a*, *b*⟩ and ⟨*b*, *c*⟩ are indiscernible in the relevant respect, then *b* and *c* are also φ-indiscernible. However, all we need to point out is that in general we *could* argue this way. We are relying here on the internal relation of φ-indiscernibility to make sense of the notion of external indiscernibility; but once this is clear, we may then generally rely on the latter to reason about the former. This involves no question begging.

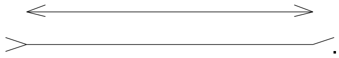
So even in this case I find the tolerance of φ-indiscernibility to be all but impossible. Perhaps one can still try to force things in the direction of a negative answer. One may argue that the sorites argument itself relies on the possibility of making determinate discriminability judgments. If an observer has to be able to see that every member of a series is indiscernible from its predecessor for the paradox to be set up, then—one could argue—there can be nothing wrong with assuming that some member will eventually be seen as discernibly different from the initial member (see [2], p. 505). There is an important and correct intuition here. Yet, again, I do not think this can close the issue. For this account puts the disposition to treat two things as indiscernible in some respect φ (on the one hand) and the capacity to discern a difference between things with respect to φ (on the other) at the same level. This might well be the case for some non-vague predicates. But in general I find the difference relevant. If φ is a determining property for, say, the predicate 'red', seeing the indiscernibility of adjacent colored strips in a sorites series does not require drawing any boundary. It just so happens that physics knows finer distinctions than the eye, as Charles Travis put it ([12], p. 348). By contrast, finding a first element in the series that is just discernibly different from an end element x (given that its predecessor is indiscernible from x) involves an active perceptual shift, the drawing of a sharp boundary. And that is the issue.

III

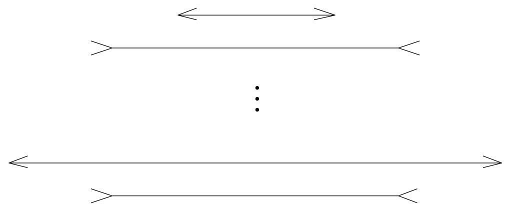
So is indiscernibility tolerant? I have objected to the a priori arguments against this, but there are still two loose ends to be tied up.

The first is whether indiscernibility actually admits of borderline cases, which is, of course, a necessary condition for tolerance. Here I have more like a methodological answer to offer. There is, I think, something ironic in trying to resolve such issues by means of simple armchair speculations. For instance, I understand actual experimental psychology attempts to match or discriminate items that are phenomenally quite similar do not behave very consistently. Particularly if the experimental set-up does not proceed by showing the items in the right sequence, it is all but impossible for a subject to discriminate items that are physically very close while matching items that are much further apart. (C. L. Hardin, for one, takes this very seriously in [7]). So it is not clear why the "plain fact of human behavior" relied upon by Burns—the fact that people do eventually start noticing a difference somewhere—should be given much credit.

Moreover, even if we content ourselves with armchair arguments, it is hard to resist the temptation to produce examples revealing the difficulty of the question. Imagine, for instance, that I ask you to compare the relative lengths of the following lines:

.

I know you are going to smile at this: "You won't fool us—we are all aware of the illusion". But of course, the Müller-Lyer illusion applies when the line on the top looks shorter than the line at the bottom where *in fact* they are exactly the same. That is the illusion. By contrast here I am not telling you anything about the actual length of the lines. I might not even know it, for all you know, and I just want you to tell me how they look *to you*. Can all of you make sharp discriminations? To make things more entertaining, imagine a sorites series based on a gradual change of length of the top line (from very short to very long), keeping the bottom line fixed. Where do you make the discriminations? Where do you stop seeing the line above as shorter than the one below?



This takes us to the second loose end. Does the presence of borderline cases for indiscernibility actually revive the paradox? In other words, can they be made to fade away gradually, thereby introducing tolerance to marginal change? The question is also considered and eventually dismissed by Burns in [2] and [3]. She does so on the grounds of the following discrimination principle (cp. [3], p. 145):

[D] Wherever a determining property for a predicate extends to one thing and it is an indeterminate matter whether or not it extends to a second thing, there is a difference between the two in a respect relevant to the application of that predicate.

Thus, if *z* is an intermediate item inserted between the first two members of a typical Armstrong triad *a*, *b*, *c*, and if it is indeterminate whether *z* is indiscernible from the third member *c* with respect to the relevant property φ, then *z* will differ significantly both from *a* and *b* (even if all three of them are indiscernible with respect to φ). For neither *a* nor *b* shares with *z* the property of being indeterminate with respect to φ-discernibility from *c*. Accordingly, higher-order differences between *a* and *b* in terms of their φ-indiscernibility from *c* cannot be made to fade away in the same fashion as lower-order differences, for any intermediate item *z* introduces a significant difference.

This principle is important, because it supplements the principle of tolerance and observational match [M] in imposing a clear constraint on the conditions under which two items should be said to differ significantly with respect to a determining property for a given observational predicate. However, what grounds do we have to accept such a constraint?

I can only think of the following line of argument, at least when the property in question is, as in the case we are interested in, the relational property of being indiscernible from other members with respect to a determining property φ. Let 'ψ' stand for the relational property in question, and let 'I_γ' indicate the relation of being indiscernible (for a fixed observer in a fixed context) with respect to a given property γ. Then the following should generally hold:

(1) $\quad I_{\psi}(b, z) \rightarrow \quad x(I_{\varphi}(b, x) \leftrightarrow I_{\varphi}(z, x))$.

From this, by universal instantiation we derive:

(2) $\quad I_{\psi}(b, z) \rightarrow (I_{\varphi}(b, c) \leftrightarrow I_{\varphi}(z, c))$

Now let ‘ ’ stand for the operator ‘indefinitely’, or ‘it is indefinite whether’. Then (the argument goes), the following must also hold:

(3) $\quad I_{\varphi}(b,c) \qquad (I_{\varphi}(z, c)) \rightarrow \neg (I_{\varphi}(b,c) \leftrightarrow I_{\varphi}(z, c))$.

But the following are true by hypothesis:

(4) $\quad I_{\varphi}(b,c)$
(5) $\qquad (I_{\varphi}(z, c))$.

Thus, by conjunction and *modus ponens* from (3) we obtain

(6) $\quad \neg (I_{\varphi}(b,c) \leftrightarrow I_{\varphi}(z, c))$.

And from this, by *modus tollens* from (2) we conclude

(7) $\quad \neg I_{\psi}(b, z)$.

(A similar reasoning will establish a corresponding conclusion with *a* in place of *b*).

By showing that (7) follows from (4) and (5), this argument would provide grounds for accepting the discrimination principle [D], at least relative to the example in question. However, the reasoning is fallacious. The crucial step is the use of (3) in the derivation of (6). For (3) is a conditional with true antecedent and can therefore be true only if one of the following holds: either the consequent (i.e., (6)) is true, or the consequent is not true and we endorse a semantics for ‘$\rightarrow$’ which certifies true a conditional with true antecedent and non-true consequent. The latter option is in my view utterly untenable. In any case, since we want to detach the consequent by *modus ponens*, it cannot serve our purposes, unless we are ready to undertake a radical revision of our entire logical machinery. So we must go with the truth of (6). But (6) is the negation of a biconditional involving a true sentence, $I_{\varphi}(b,c)$, and an indefinite one, $I_{\varphi}(z, c)$. So (6) is true only if one of the following conditions holds: either we assume a semantics for ‘$\leftrightarrow$’ that treats such a biconditional as false, or we certify the biconditional indefinite, i.e., neither true nor false, and we assume a semantics for ‘$\neg$’ that certifies as true the negation of an indefinite sentence. Again, the first option is in my view untenable, and contrasts with all familiar three-valued or supervaluational semantics. So I suspect we must endorse the second option, which effectively amounts to taking ‘$\neg$’ as a connective of external negation. Now this is feasable, though prima facie unexpected. But then the conclusion (7) obtained from (6) and (2) by *modus tollens* must also owe its truth to an interpretation of '¬' as external negation. This too is legitimate, of course. But it leaves open the possibility that $I_\psi(b, z)$ be undefined in truth value (as opposed to false). And this conflicts plainly with the intended use of [D].

As I see it, the moral to be drawn is that the discrimination principle [D] is too strong to be justified on the sole basis of (1); all we can accept is the following variant:

[D'] Wherever a determining property for a predicate extends to one thing and it is an indeterminate matter whether or not it extends to a second thing, it is an indeterminate matter whether or not there is a difference between the two in a respect relevant to the application of that predicate.

The difference is not of lesser importance. Were [D] true, the derivation of (7) would simply prevent the observer from applying the principle of observational match [M], and there would be uncertainty as to whether *z* should be ascribed the relevant predicate. In short, *z* would be a borderline case. But if we only have [D'], then the question of whether or not [M] applies is itself indeterminate, thereby making *z* a borderline case of a borderline case. And this of course opens the door to all sorts of higher-order vagueness problems.

So I think Burns should face the issue very carefully. For unless we are given good reasons to endorse [D] instead of [D'], the sharpness of indiscernibility is not established, with serious consequences for the main argument.

IV

Let me now try to bring all of this back to Burns' general program. I have pointed out that the program puts considerable weight on an observer's ability to recognize relevant differences in every context that is prone to the sorites paradox. And I have argued that this involves presuppositions which undermine Burns' ingenious treatment of the paradox. Now, I imagine this result does not by itself affect the general claim that vagueness is essentially a pragmatic phenomenon. It does, however, seem to me to have important consequences for the specific pragmatic perspective on vagueness that Burns advocates in her paper.

For, on the one hand, Burns' appeal to the contextual nature of vagueness becomes rather flimsy. Her basic strategy is to show that within a single context no dramatic problem arises: within each context the boundaries of application of vague predicates can be drawn—they are *de facto* drawn by people with an understanding of their meaning, although there is no truth of the matter as to where the boundaries should be drawn. It is rather the intercontextual business, so to speak, that is incoherent, thereby yielding vagueness: different people (or the same person on different occasions) draw different boundaries, and there is no way to say who does it better. Thus, vagueness ceases to be a matter of semantics and becomes the concern of pragmatics. The problem is now that the starting point of this whole account is questionable. For I have tried to show that such troubles as the sorites paradox still threaten *even within individual contexts*. To put it differently, Burns says that the sources of sorites problems "are to be found in the use of alternative precise languages and resulting conflicts" (p. 20), in the spirit of David Lewis's philosophy of language [8]. This presupposes that such precise languages are available, and Burns' explanation of the sorites paradox is to provide grounds for such a presupposition. If the explanation is found faulty, the entire account is in jeopardy.

On the other hand, it seems to me that Burns' account of the connection between the two varieties of vagueness is also weakened. We are told that vagueness—any type of vagueness in language—is in the end a matter of informational failure. Of course there is a difference between the information provided by our sensory sources and the information involved in a communicative exchange. But—so the account goes—in both cases vagueness arises because the amount of information made available is faulty, indefinite, or otherwise insufficient relative to a contextually determined purpose (applying an observational predicate or evaluating a conversational contribution). In particular, an observer confronted with a sorites series is in a position of uncertainty as to where a line should be drawn separating the positive instances of a predicate from its negative instances. According to Burns, and if we are ready to follow her account of observational predicates as involving *ceteris paribus* conditions, the line is eventually drawn. This aligns human observers with people confronted with informational vagueness. But then, again, this is precisely where the argument is leaky. And if this argument is leaky, the analogy with informational vagueness becomes unsteady.

With all this, I would like to suggest that the distinction between the two varieties of vagueness is still worth keeping, at least as a working hypothesis. Maybe Burns is right in her conclusion that it all boils down to communicative fault. But for the time being I find her arguments a bit too optimistic. Old fashioned vagueness—that which she wants to deport into language use—still threatens.

REFERENCES

[1] David M. Armstrong, *A Materialist Theory of Mind*, London: Routledge and Kegan Paul, 1961.

[2] Linda C. Burns, 'Vagueness and Coherence', *Synthese* 68 (1986), 487–513.

[3] Linda C. Burns, *Vagueness. An Investigation into Natural Languages and the Sorites Paradox*, Dordrecht/Boston/London: Kluwer Academic Publishers, 1991.

[4] Linda C. Burns, 'Something to Do with Vagueness', this issue.

[5] Michael Dummett, 'Wang's Paradox', *Synthese* 30 (1975), 301–324.

[6] Michael Dummett, 'Common Sense and Physics', in G. F. Macdonald (ed.), *Perception and Identity. Essays Presented to A. J. Ayer with His Replies to Them*, London: Macmillan, 1979, pp. 1–40.

[7] C. L. Hardin, 'Phenomenal Colors and sorites', *Noûs* 22 (1988), 213–234.

[8] David K. Lewis, 'Language and Languages', in K. Gunderson (ed.), *Minnesota Studies in the Philosophy of Science*, Volume VII, Minneapolis: University of Minnesota Press, 1975, pp. 3–35.

[9] Stephen P. Schwartz, 'Vagueness and Incoherence: A Reply to Burns', *Synthese* 80 (1989), 395–406.

[10] Roy A. Sorensen, 'A Thousand Clones', *Mind* 103 (1994), 47–54.

[11] Roy A. Sorensen, Review of [3], *Philosophy and Phenomenological Research* 54 (1994), 483–486.

[12] Charles Travis, 'Vagueness, Observation, and sorites', *Mind* 94 (1985), 343–366.

[13] Crispin Wright, 'On the Coherence of Vague Predicates', *Synthese* 30 (1975), 325–364.