

Saunders and Wallace reply

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Words have no function save as they play a role in sentences: their semantic features are abstracted from the semantic features of sentences, just as the semantic features of sentences are abstracted from *their* part in helping people achieve goals or realize intentions.

(Davidson 2001, p. 220)

Paul Tappenden's objections to our view boil down to two interconnected points:

1. We provide no mechanism by which words succeed in referring to the objects to which they are supposed to refer.
2. We extrapolate illicitly from non-branching to branching cases, without acknowledging the metaphysical novelty of the latter.

We find the first objection difficult to understand. We have explained exactly the rules that determine which objects are referred to by referential expressions; what more does Tappenden want? As we say in our paper, "we do not believe there *are* any metaphysical truths when it comes to the meanings of everyday words like 'person' and 'I', over and above those that are fixed by observable linguistic usage." (Come to that, if he does want more, why stop at names and pronouns? We are conscious of having provided no mechanism connecting the predicate "is a hatstand" to the set of all hatstands".)

But there is a tradition in philosophy of language which trades on a thicker notion of reference than Quine's and Davidson's; perhaps Tappenden alludes to this notion? If so, we are happy to oblige, up to a point. A "world", recall, is for us a four-dimensional non-branching entity realised by the branching structure of the quantum state; any such world is "quasi-classical", isomorphic on sufficiently coarse-grained levels to the familiar world of people and animals, chairs and tables. Tappenden is welcome to tell whatever referential story he likes within that world, and it will go exactly the same way as in the non-branching case. If, for instance, he feels that his using "I" to refer to himself relies on a causal link between a stage of himself and his utterance, that causal link is available to him — *provided* he is happy with an emergent notion of causation relativised to a world, and with a notion of stage likewise relativised.

We suspect he is not happy with any such thing. As far as we can tell, Tappenden wants not some relation described in the emergent level of quasiclassical physics, but one described at the level of the ‘real stuff’ that is common to worlds. Unfortunately, his picture of what that ‘real stuff’ is seems mistaken. Talk of “lightning flashes”, in particular, will not do: such events are themselves quasiclassical in nature, describable only in decoherent-history terms. (To make this vivid, note that in the time taken by a lightning flash — a process of a few milliseconds — decoherence will produce branching into countless billions of segments of decohering histories, even using quite a coarse-grained notion of individuation of branches.)

As we noted in our original paper, on our semantics what is common to worlds cannot be captured in ordinary words. In metaphysics or physics, it requires technical language (‘temporal parts’; ‘segment of a decoherent history’.)

So: if Tappenden is not happy with a linking mechanism relativised to branches, he will need to require a mechanism of a far more basic sort: a fundamental causal relation between the fundamental (ultimately quantum-field-theoretic?) stuff subserving the utterance of a referring expression, and the fundamental stuff subserving its referent.

Well, he’s right: no such thing is anywhere to be found in our proposal, so if reference requires it, there is no reference in our semantics. In fact, the situation is rather worse than that: since there are good reasons to doubt whether “fundamental causation” plays any role in physics at all¹, it appears to be a wide-open question whether “referential expressions” succeed in referring at all!

The real point, of course, is that Tappenden’s “real-stuff” requirement on a theory of reference is indefensible. Semantics must answer to use *somewhere*: if a semantic theory predicts that there is no reference — if it even predicts that it is an open question in quantum field theory as to whether or not there is reference — then so much the worse for that semantic theory.

This brings us to Tappenden’s second objection. For the only motivation we can see for his requirement on reference (and the only explanation we can find of the fact that he makes no argument at all for it) is that he knows (somehow!) that it is part of how reference works in our ordinary non-branching case, but that it is an open question how, or if, it works in the novel case of branching.

If this is his argument, though, it begs the question. We have lots of evidence for how reference works in our universe, but none of that evidence tells us how (or if!) reference works in a non-branching universe without the additional assumption that our universe is non-branching — which is exactly the point at issue. Branching may be *epistemically* novel, in the shallow sense that we hadn’t thought of it until recently, but if the Everett interpretation is correct, it is not *metaphysically* novel at all, and any evidence about how semantics works in *our* Universe is *ipso facto* evidence about how it works in a *branching* universe.

To conclude: in our original paper, we wrote “We are not looking for deep metaphysical truths about identity, the referent of ‘I’, the nature of persons, and

¹See, for instance, Ross and Spurrett (2004), Ladyman and Ross (2007), Norton (2003) for arguments in support of this view; as far as we are aware, it was first expressed by Russell (1917)

so on; we are looking for serviceability.” Tappenden, by contrast, does seem to be looking for deep metaphysical truths: truths to which we have no access except via our pre-scientific intuitions, yet which we can know so surely that they bear on our choice of scientific theory. We wish him luck in his search; he’ll need it.

References

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