routinely counsel our first-year students not to do. We ought not let examples such as Audi's convince us that it is reasonable to do what we wisely advise against.[9]

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[9] I am grateful to Robert Audi, Earl Conee, Ted Sider, Steven Hales and Keith DeRose for helpful discussions of this paper. A version of it was presented at the 1994 Western Division meeting of the American Philosophical Association. Robert Audi commented.

DEDUCTIVE CLOSURE, DEFEASIBILITY AND SCEPTICISM: A REPLY TO FELDMAN

BY ROBERT AUDI

If entailment is truth-preserving and justification is a positive status *vis à vis* truth, one might expect justification for believing a proposition to transmit to certain propositions entailed by it. One might think, e.g., that if S is justified in believing p, and also justified in believing that p entails q, then S is justified in believing q – let us call this the transmission by justifiably presumed entailment principle [*the entailment principle* for short]. In previous work I have attacked various closure principles, in part with a view to rebutting scepticism. In his paper 'In Defence of Closure' (above, pp. 487–94), Richard Feldman's probing, very valuable study of some of my efforts indicates that there is far more to be said on the matter. I shall try both to assess his main points and to move towards a better understanding of when justification transmits and when it does not. I should add that I believe he would take his main points to apply to the principle just stated, which is among those I have rejected, though he intends to be discussing the issue in terms of his principle (C3), the principle that if S is justified in believing the conjunction *p and p logically implies q*, then S is justified in believing q (p. 488). I shall compare the principles later.

I

Let us start with the material conditional interpretation of my example: suppose I have only minimal justification for believing the arithmetical proposition

A. The sum of the relevant column of figures is 10,952.

The question is whether it is plausible to claim that I am justified in believing that

B. Either my wife does not say that (A) is false, or she denies it and it is true.

I do not find this claim plausible, and I think Feldman agrees that to argue for it using, e.g., the closure principle just cited begs the question (p. 490). But he has an argument apparently independent of such principles: '(B) can be made true by (A)'s being true and it can also be made true by my wife's not denying (A). My reasons for asserting (B) are at least as good as my reasons for asserting (A)' (*ibid.*). There is an ambiguity here: the crucial second claim is plausible if taken to mean that my reasons are *logically* just as good, but Feldman needs an epistemic reading, and it would beg the question to say, e.g., that my *justification* is at least as good.

As I see it, my justification for believing (A) is, chiefly, that my reasonably careful calculations indicate (A); these do not justify my believing that my wife will not deny (A), and surely do not justify my believing that she denies it and it is true. But my justification for the disjunction apparently must go through one of these disputed routes. Granted, there are disjunctions one can be justified in believing without being justified in believing any individual disjunct, but (B) is not one of them. One is of course the case of *p or ~p*; another is the kind in which there is independent information about the disjunction, as where, relying on testimony, one can be justified in believing that *X* is lying, or *Y* is lying, or *Z* is lying, yet have no justification for believing any particular one of them to be lying. Still another is the case of a connection between the disjuncts, as where, given the law linking being metallic to being a conductor, one can be justified in believing of a strange substance that either it is not metallic or it is a conductor, without having any justification for believing either disjunct by itself. The case at hand, however, is not one of these.

Indeed, in the imagined case I could have some reason to believe my wife *will* deny my results, say because she occasionally does. To be sure, we must perhaps assume that I have not found out on those occasions who was, at least probably, right. For (i) if I have reason to believe she will deny (A), *and* to believe I was right (in similar cases), then I have some justification for believing that if she denies it she is wrong; and (ii) if I have reason to believe she will deny (A) and to believe *she* was right, then I need more justification for (A) in the first place and may thereby have justification for the conditional if I have it for (A). Now, if I have some reason to believe she will deny my results, my justification for believing the disjunction would surely have to derive from a justification for believing that she denies (A) and it is true. I do not think I have adequate justification for that proposition. (I want to leave it open that there is some other route justification can take here, conceivably a satisfactory one; but there still seem to me to be counter-examples to the entailment principle.)

It is interesting that Feldman does not go into an issue suggested by his own wording: what determines how good someone's justification is? He apparently neglects my emphasis on *S*'s having *minimal* justification. I noted that the minimum can be high; the point is that *S* must barely reach it.[1] For concreteness, think of *S* as having *adequate* justification for *p*, and take this to be the degree appropriate to an epistemically reasonable person's believing *p*. A different but perhaps equally useful conception of adequate justification would be the degree of justification such that if *p* is true and there is no Gettier problem, *S* knows that *p*. My claim, is, roughly, that

[1] *Belief, Justification and Knowledge* (Belmont: Wadsworth, 1988), pp. 78f.

adequate justification need not transmit over an entailment one is justified in believing to hold; I do *not* deny the following *principle of limited transmission*, which can account for many of the intuitions supporting closure in general: if *S* is justified in believing *p*, and also justified in believing that *p* entails *q*, then *S* has *some* degree of justification for believing *q*.

The subjunctive reading is more problematic. Here Feldman's key claim is that the (only?) way I can be justified in believing that (A) implies

B3. If my wife were to say that (B) is false, then she would be wrong

is to 'know that (B3) is a necessary truth and thus that it follows from everything' (p. 491). This claim – and, more important, its counterpart for justification – does not seem warranted by the facts of the example. Suppose I must be justified in believing that (A) is necessarily true ('necessary', for short) in order to be justified in believing that the corresponding conditional of the inference from (A) to (B3) is necessary, or in believing that (B3) *follows* from (A). This cannot be taken without argument to show that I am justified in believing (B3) itself. For if I am justified in believing (A) to hold in *any* possible world, then perhaps I am justified in believing that the corresponding conditional of the inference from (A) to (B3) is necessary, i.e., that necessarily

CC. If (A) is true, then if she were to say that (A) is false, she would be wrong.

I agree that one *can* see that (B3) follows from (A) by noting that the consequent of (B3) (taken as equivalent to 'In any world in which she denies (A), she is wrong') is necessary, inferring (B3)'s necessity from that of its consequent, and seeing the validity of the inference from (A) to (B3) by subsuming the inference under the principle that inferences with necessary conclusions are valid. But the route I have suggested is more direct, and seems more natural once we note that my justification for believing that (A) is necessary has two sources: my justification for believing that it is true *and* my justification for believing that, say as an arithmetic proposition, it is *non-contingent*. Given these sources, I am justified in thinking of the case in which it is true as one in which it is non-contingently so, and thus as one in which, if she denied it she would be wrong. I suggest, then, that given my particular justification for believing (A) to be true and for believing it to be non-contingent, I am justified in believing that, necessarily, if (A) is true then if she denied it she would be wrong; colloquially, that it must be that if (A) is true at all, then if she denied it she would be wrong.

To be sure, I am *also* justified in believing that if (A) is necessarily true, then if she denied it she would be wrong; but this is not the corresponding conditional of the inference, nor is it equivalent to (B3), which may be assimilated to it by someone thinking of (A) as necessary. The issue is whether justification for believing (A), which *is* a necessary non-modal truth, yields justification for believing a certain non-modal non-self-evident conditional – that if she denied (A) she would be wrong. It is not whether the justification for believing (A) yields justification for a modal and apparently self-evident conclusion – that if she denied (A), which is necessarily true, she would be wrong. Certainly my justification for believing this self-evident conditional does not imply my having justification for believing (B3). For surely I can be justified in believing that if, in any possible world, (A) is true, then if she denied (A) (in some possible world or other) she would be wrong, without my being justified in believing the quite substantive (B3), that if she denied (A) she would be wrong.

These considerations suggest a second, modal, counter-example to the entailment principle. Let *p* in that principle be *it is necessary that (A)*. Now the corresponding conditional of the inference from *p* to (B3) is

CC′. If (A) is necessary, then if she denied (A) she would be wrong.

This conditional is surely both self-evident and necessary, and I am justified in believing it. None of this implies, however, that I am justified in believing (B3). For after all my justification for believing (A) necessary is no better than my justification for believing it to be *true*; it is certainly not as good as my justification for thinking (A) non-contingent, a point easily obscured if we presuppose its truth and simply focus on the idea of justification for thinking it necessary. It seems possible, then, that I might have justification, at any reasonable minimal threshold, for believing that (A) is necessary and for believing that this entails (B3), yet lack such justification for (B3). I believe the same points hold with grounds for knowing substituted for justification.

II

I do not claim to have *proved* that I am not justified in believing (B3), but that continues to seem true – provided we bear in mind that I may still have *some* reason to believe (B3), and some degree of justification for it. In one place I have suggested a way to see *why* I would not be justified; I sketched a supposition test for determining justification for (at least non-material) conditionals.[2] The idea, in part, was that one supposes the antecedent in relation to one's evidence base – a procedure I merely sketched – and sees whether one is then justified in believing the consequent. Should one not be able, under some conditions, both to suppose the antecedent along with one's overall (relevant) evidence and to be justified in believing the consequent? It was in this spirit that I suggested supposing that someone more competent than oneself denies a proposition entailed by something one is justified in believing. (I did not mean to trade on the point that if in fact a more competent person *does* deny such a proposition, this incident would give one new (negative) evidence, and I trust my case does not depend on any such conflation.)

I stress that, contrary to what Feldman suggests, nothing in my case against strong closure principles, nor even in what I have said about suppositions, implies that suppositions about counter-evidence can outweigh actual evidence. My view is consistent with the thesis that the *absolute* weight of one's evidence for *p* is unaffected by suppositions – and is indeed the same relative to an entailed conditional such as (B3). The point is that this same evidence may not, on balance, yield (adequate) *justification* for the entailed proposition.

[2] In 'Justification, Deductive Closure, and Reasons to Believe', *Dialogue*, 30 (1991), pp. 79–82.

III

In closing, I have two points. One concerns Feldman's conception of the overall issue, the other a specific closure principle.

He wants to avoid problems special to the issue of the conjunctivity of justification (an aim I am not committed to sharing), and so proposes to discuss my position using (C3), the principle that if *S* is justified in believing the conjunction *p and p logically implies q*, then *S* is justified in believing *q* – the *transmission by explicitation principle*. He speaks (on p. 488) rather as if this were equivalent to the principle that if *S* is justified in believing *p*, and in believing that *p* logically implies *q*, then *S* is justified in believing *q* – the *entailment principle*. (Alternatively, we could speak of *S*'s being justified in believing that *p* entails *q*, or of *p*'s obviously entailing *q*. None of the resulting principles is unproblematic, but all have some plausibility. What follows is neutral with respect to these formulations and other plausible ones.) His critique apparently does not presuppose the equivalence, but it is important to see that these two principles are not equivalent. Intuitively, the explicitation principle implies that justification of a whole devolves on its obvious 'constituents'; the entailment principle says that one may proceed from distinct justified 'parts' to a justified proposition that is not in the relevant sense a constituent of either.

Granted, we may validly deduce, from the propositions that *p*, and that *p* implies *q*, the conjunction of the two, and conversely; but to treat the explicitation and entailment principles as for that reason equivalent would be warranted only if it were true that, if *S* is justified in believing *p*, and *p* is equivalent to *q*, then *S* is justified in believing *q*. This principle is false: *S* might not be able to understand how the equivalence holds; worse still, there are equivalents of propositions we are justified in believing which we cannot even understand, such as those formed by adding an even number of negations too large for any of us or even any of our best computers to count. What one cannot even understand, one cannot be justified in believing. (There may be a sense in which one could still *have* a justification for believing the proposition in question. But this sense is not the one relevant to knowledge, nor the one at issue in the discussion of closure pertinent to scepticism.) I mention this because I *believe* I can accept the explicitation principle – though explaining how, given my rejection of the entailment principle, is no trivial exercise. This may indicate an area of important agreement between Feldman and me.

I believe, however, that Feldman goes too far when he says (p. 493), in connection with teaching, that you should 'accept what you know to be the consequences of your beliefs'. Note, incidentally, that in so far as this is connected with closure principles, it suggests not the explicitation principle but the entailment principle. I *agree* that we cannot, as Feldman puts it, 'reasonably think: (A) is true and (A) implies (B), but (B) is not true' (*ibid.*), but this suggests the explicitation principle, not the entailment principle, which is what is most naturally taken to underlie the first claim. It is the entailment principle which I am attacking. Surely we should sometimes reject what we know to be a consequence of something we believe, and give up at least one of our premises. Logic can lead us not just directly from truth to truth, but also from the rejection of falsehood to the rejection of further falsehood. (This may give some point to saying that, often, we should *suppose* the truth of what we know to be the consequences of what we believe.) For similar reasons, even the following more plausible principle seems false: if, at *t*, *S* is justified in believing *p*, and also in believing that *p* entails *q*, then if, at *t*, *S* infers *q* from *p*, *S* is justified in believing *q*. To cite one relevant point not implied by my attack on the entailment principle: in the course of inferring *q*, *S* may acquire justification for at least withholding it. (The example presupposes that *t* has enough duration to permit the occurrence of a thought.)

If I have been right, Feldman can retain the closure principle he specially wants, the explicitation principle, while rejecting the kinds of closure principles I have attacked. And we can both redouble our efforts to meet the challenges of scepticism. But I doubt that the epistemic transmission of justification or knowledge mirrors the logical transmission of truth in the way it can be initially so natural to think.[3]

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[3] This paper was given at the Pacific Division Meetings of the American Philosophical Association in 1994. I benefited from discussion with Richard Feldman and others at the session, and for detailed comments I particularly want to thank Albert Casullo, Christopher Kulp, Jeffrey Poland and especially Ralph Kennedy.

IN SEARCH OF PIGEONHOLES

BY JOE LAPORTE

A recent defender of essentialism, T.E. Wilkerson, has conceded that the taxa biologists recognize are characterized by artificial boundaries.[1] This is true even at the level of species, he says: species merge into one another, so that pronounced natural breaks do not intervene between them. Nevertheless, he has proposed that organisms do break down into discrete kinds, but kinds that are narrower than species.

Wilkerson's suggestion is intriguing. If biological organisms split up into pigeonhole-like units below the level of species, this is certainly of major philosophical significance. But essentialists should not hold their breath. Candidates for narrow kind categories that improve on the species category are not easy to name. In what follows, I shall consider a few options that initially seem hopeful. None pans out. In the end we are still without much of a clue as to where to locate these narrow

[1] T.E. Wilkerson, 'Species, Essences and the Names of Natural Kinds', *The Philosophical Quarterly*, 43 (1993), pp. 1–19, to which most citations of Wilkerson below refer.