Evidence of evidence is evidence under screening-off

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ABSTRACT: An important question in the current debate on the epistemic significance of peer disagreement is whether evidence of evidence is evidence. Fitelson argues (persuasively in my view) that, at least on some renderings of the thesis that evidence of evidence is evidence, there are cases where evidence of evidence is *not* evidence. I introduce a "screening-off" condition and show that under this condition evidence of evidence *is* evidence.

KEYWORDS: evidence; evidence of evidence is evidence; Feldman; Fitelson; peer disagreement; screening-off; transitivity

1 Introduction

An important question in the current debate on the epistemic significance of peer disagreement is whether evidence of evidence is evidence. Feldman (2006, 2007, 2009), for one, answers in the affirmative.[1] He holds that evidence of evidence is evidence, and that, in part because of this, peer disagreement can have a significant impact on what one ought to believe. Fitelson (2012), though, argues (persuasively in my view) that, at least on some renderings of the thesis that evidence of evidence is evidence, there are cases where evidence of evidence is *not* evidence. I introduce a "screening-off" condition and show that under this condition evidence of evidence *is* evidence.

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[1] See too, for example, Kelly (2010).

2 Evidence-IF of evidence-IF is not always evidence-IF

The thesis that evidence of evidence is evidence comes in many varieties. Here are two:

(EEE_S) If E is evidence for the proposition that S has evidence E* for H, then E is evidence for H;

(EEE_U) If E is evidence for the proposition that S has some evidence for H, then E is evidence for H.

(EEE_S) concerns evidence of *specified* evidence (thus the subscript “S”), whereas (EEE_U) concerns evidence of *un*specified evidence (hence the subscript “U”).[2]

How is the term “evidence” to be understood in (EEE_S) and (EEE_U)? There are (at least) two options. First, the term “evidence” can be understood in the sense of “increase in firmness,” where E is evidence for H just in case E increases the probability of H, i.e., $Pr(H \mid E) > Pr(H)$. Evidence in this sense is “evidence-IF.” Second, the term “evidence” can be understood in the sense of “sufficient firmness,” where E is evidence for H if and only if the probability of H given E is sufficiently high. Evidence in this sense is “evidence-SF.”[3] I want to take the first option. (EEE_S) and (EEE_U) can thus be reformulated as follows:

(EEE_S) If E is evidence-IF for the proposition that S has evidence-IF E* for H, then E is evidence-IF for H;

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[2] Feldman (2009, p. 305) distinguishes between “specified evidence disagreements” and “unspecified evidence disagreements.” Feldman (2009, p. 305) notes a third category of disagreements: “evidential signifcance disagreements.”

[3] Cf. Carnap (1962, Preface to the Second Edition) on “concepts of increase in firmness” and “concepts of firmness.” See also Douven (2011) on “evidence,” “**t**-evidence,” “**t**’-evidence,” and “**tt**’-evidence,” and Roche and Shogenji (forthcoming) on “confirmation-IF,” “confirmation-SF,” “confirmation-IF&SF,” and “confirmation-TSF.”

(EEE_U) If E is evidence-IF for the proposition that S has some evidence-IF for H, then E is evidence-IF for H.

I leave it for further investigation whether evidence-SF of evidence-SF, specified or unspecified, is evidence-SF, and, if not, whether there are (nontrivial) conditions under which evidence-SF of evidence-SF, specified or unspecified, is evidence-SF (though note 11 below is relevant here). Below, though, I provide two "mixed" principles involving both the notion of evidence-IF and the notion of evidence-SF.

(EEE_S) is open to counterexample. This can be seen by considering a case given by Fitelson (2012).[4] Suppose a card is randomly drawn from a standard deck of cards. Suppose John knows what card is drawn. Let E, E*, H, and H* be understood as follows:

E The card drawn is a Black;

E* The card drawn is the Ace of Spades;

H The card drawn is an Ace;

H* John has evidence-IF E* for H.

E is evidence-IF for H*, since E increases the probability that John sees that E* and thus has evidence-IF E* for H. But E is not evidence-IF for H, given that Pr(H | E) = 1/13 = Pr(H).[5]

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[4] I have introduced minor notational changes to Fitelson's case.

[5] Fitelson takes this case to refute the thesis "If *E* (non-conclusively) supports the claim that (some subject) *S* possesses evidence that supports *p*, then *E* supports *p*" (2012, p. 85), where "support" is understood in the sense of evidence-IF. This thesis is at least superficially more like (EEE_U) than (EEE_S). But Fitelson does not explicitly distinguish between evidence of specified evidence and evidence of unspecified evidence. Perhaps if pressed Fitelson would clarify that the thesis he has in mind is (EEE_S). Or perhaps he would clarify that he has in mind both (EEE_S) and (EEE_U). Fitelson goes on to give counterexamples to the theses "If E_1 supports the claim that *S* possesses evidence E_2 which supports *p*, then *the*

Now imagine a case just like Fitelson's case except that whether John knows what card is drawn is determined as follows (and unbeknownst to John): if the card drawn is the Ace of Spades, then John is shown what card is drawn; if the card drawn is not the Ace of Spades, then John is not shown what card is drawn, in which case John has no evidence-IF for H. Let H** be understood as follows:

H** John has some evidence-IF for H.

E increases the probability that John sees that E* and so has some evidence-IF—viz., E*—for H. Thus E is evidence-IF for H**. But, as before, E is not evidence-IF for H. So (EEE_U), like (EEE_S), is open to counterexample.[6]

(EEE_S) and (EEE_U) are false: Evidence-IF of evidence-IF, specified or unspecified, is not always evidence-IF. The intuition behind (EEE_S) and (EEE_U), however, is not entirely misguided. This, at any rate, is what I argue in section 3.

3 Evidence-IF of evidence-IF is evidence-IF under screening-off

In the first card case (Fitelson's case), it seems, H* is evidence-IF for H. Similarly, in the second card case, H** is evidence-IF for H. The two cases thus serve to illustrate the *non-transitivity* of evidence-IF: in first card case, E is evidence-IF for H* which in turn is evidence-IF for H, and yet E is not evidence-

conjunction E_1 & E_2 supports *p*" (2012, p. 86, emphasis Fitelson's) and "If S_1 possesses evidence (E_1) which supports the claim that S_2 possesses evidence (E_2) which supports *p*, then S_1 possesses evidence (E_3) which supports *p*" (2012, p. 87).

[6] The first card case (Fitelson's case) might be a counterexample to (EEE_U). But, at the same time, the first card case might *not* be a counterexample to (EEE_U). Suppose X is included in S's total evidence *if* and only if S knows X (Williamson 2000). Then, regardless of whether the card drawn is an Ace, John knows a proposition X (for example, the proposition that the card drawn is not a Two) such that X is included in his total evidence and X is evidence-IF for H, in which case he has some evidence-IF for H. Thus, Pr(H**) = 1. Thus, E is *not* evidence-IF for H**.

IF for H; in the second card case, E is evidence-IF for H** which in turn is evidence-IF for H, but E is not evidence-IF for H.

There are conditions, though, under which evidence-IF *is* transitive. Each of the following "screening-off" conditions in particular is just such a condition:

(SOC1) $\Pr(Z \mid Y \wedge X) = \Pr(Z \mid Y)$ and $\Pr(Z \mid \neg Y \wedge X) = \Pr(Z \mid \neg Y)$;[7]

(SOC2) $\Pr(Z \mid Y \wedge X) \geq \Pr(Z \mid Y)$ and $\Pr(Z \mid \neg Y \wedge X) \geq \Pr(Z \mid \neg Y)$.[8]

(SOC1) says in effect that given the truth or falsity of Y, X has *no* impact on the probability of Z. In contrast, (SOC2) says in effect that given the truth or falsity of Y, X has *no negative* impact on the probability of Z—either X has no impact on the probability of Z or else the impact is positive. (SOC2) is weaker than (SOC1) in that (SOC2) holds if (SOC1) holds, but not vice versa. So I want to set aside (SOC1) and focus on (SOC2). (SOC2) is a condition for transitivity in evidence-IF in that: If (i) X is evidence-IF for Y, (ii) Y is evidence-IF for Z, and (iii) (SOC2) holds, then X is evidence-IF for Z.

(EEE_S) and (EEE_U) are false: Evidence-IF of specified or unspecified evidence-IF is not always evidence-IF. But, given that (SOC2) is a condition for transitivity in evidence-IF, we have:

(EEE'_S) If (i) E is evidence-IF for the proposition H* that S has evidence-IF E* for H, (ii) H* is evidence-IF for H, and (iii) (SOC2) holds, then E is evidence-IF for H;

(EEE'_U) If (i) E is evidence-IF for the proposition H** that S has some evidence-IF for H, (ii) H** is evidence-IF for H, and (iii) (SOC2) holds, then E is evidence-IF for H.

These principles can be glossed: Evidence-IF of specified or unspecified evidence-IF *is* evidence-IF *under screening-off*.[9]

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[7] See Shogenji (2003). For an equivalent result, see Sober (2009, p. 76).
[8] See Roche (2012a).
[9] In the special case where Y is not just evidence-IF for Z but also *entails* Z, each of the following conditions is a condition for transitivity in evidence-IF: (a) Pr(Z)

Consider, again, the two card cases. In the first card case, $\Pr(H \mid \neg H^* \wedge E) = 1/25 < 3/51 = \Pr(H \mid \neg H^*)$. In the second card case, $\Pr(H \mid \neg H^{**} \wedge E) = 1/25 < 3/51 = \Pr(H \mid \neg H^{**})$. (SOC2) holds in neither case.

Consider now the "mixed" principles:

(EEE''_S) If (i) E is evidence-IF for the proposition H* that S has evidence-SF E* for H, (ii) H* is evidence-IF for H, and (iii) (SOC2) holds, then E is evidence-IF for H;

(EEE''_U) If (i) E is evidence-IF for the proposition H** that S has some evidence-SF for H, (ii) H** is evidence-IF for H, and (iii) (SOC2) holds, then E is evidence-IF for H.

(EEE''_S) and (EEE''_U) differ from (EEE'_S) and (EEE'_U) in that H* in (EEE''_S) and H** in (EEE''_U) concern evidence-*SF*. Evidence-IF is transitive under (SOC2), hence (EEE''_S) and (EEE''_U), as with (EEE'_S) and (EEE'_U), hold without exception.

(EEE'_S), (EEE'_U), (EEE''_S), and (EEE''_U) could instead be formulated in terms of "S's total evidence." (EEE''_U), for example, could be formulated as follows: If (i) E is evidence-IF for the proposition H** that *S's total evidence is evidence-SF for H*, (ii) H** is evidence-IF for H, and (iii) (SOC2) holds, then E is evidence-IF for H.

The two card cases are somewhat removed from the cases at issue in the current debate on the epistemic significance of peer disagreement.[10] The latter

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$< \Pr(Y \mid X)$; (b) $\Pr(Z \wedge \neg Y \mid X) \geq \Pr(Z \wedge \neg Y)$. For discussion and references, see Roche and Shogenji (forthcoming). If (SOC2) in (EEE'_S) were replaced by (a), or were replaced by (b), and the condition that H* entails H were added to the antecedent, the resulting thesis would hold without exception. Similarly, if (SOC2) in (EEE'_U) were replaced by (a), or were replaced by (b), and the condition that H** entails H were added to the antecedent, the resulting thesis would hold without exception. Whether any such thesis, though correct, would be of any real importance is another issue.

[10] I have in mind "peer disagreement" understood so that two subjects can be peers on a given issue even if they do not have *exactly* the same evidence relevant to that issue. See Feldman (2009) for relevant discussion.

cases are cases where E describes, say, some subject's doxastic attitude with respect to H. Imagine a case where you have a *low* credence in (disbelieve):

H The departmental meeting is scheduled for 3:30 today.

You have a low credence in H because, say, the head of the department sent around an email yesterday wherein she announced:

H' The departmental meeting is scheduled for 4:30 tomorrow.

You then learn that John, a trusted colleague, has a high credence in (believes) H. That is, you learn:

E John has a high credence in H.

Let H** be understood as follows:

H** John's total evidence is evidence-SF for H.

You do not know all the details of John's total evidence. Intuitively, when you learn E, you should increase your credence in H**: John tends to have a high credence in only propositions for which his total evidence is evidence-SF; perhaps the meeting time has been changed and John knows this, perhaps the email from yesterday contained a typo and John knows this, and so on. Further, intuitively, when you learn E, you should increase your credence in H (in part because you should increase your credence in H**). Here (EEE''_U), when understood in terms of total evidence (as explained in the prior paragraph), can be of help. E is evidence-IF (and perhaps even evidence-SF) for H** which in turn is evidence-IF for H. $Pr(H \mid H^{**} \wedge E) = Pr(H \mid H^{**})$: when it is given that John's total evidence is evidence-SF for H, *whether* John has a high credence in H—whether John's degree of credence is what it should be (or at least is permissible) given his total evidence—has *no* impact on the probability of H; so when it is given that John's total evidence is evidence-SF for H, *that* John has a high credence in H has *no* impact on the probability of H. More cautiously, $Pr(H \mid H^{**} \wedge E) \geq Pr(H \mid H^{**})$; when H** is given, E has no *negative* impact on the probability of H. $Pr(H \mid \neg H^{**} \wedge E) > Pr(H \mid \neg H^{**})$: when it is given that John's total evidence is not evidence-SF for H, that John has a high credence in H has a *positive* impact on the probability of H; this is because, in part, at least typically when John has a high credence in a proposition for which his total evidence is not evidence-SF, his total evidence is *nearly* evidence-SF for the proposition in question. More cautiously, $Pr(H \mid \neg H^{**} \wedge E) \geq Pr(H \mid \neg H^{**})$; when ¬H** is given, E has no *negative* impact on the probability of H. Thus, (SOC2) holds. Thus, by (EEE''_U), it follows that E is evidence-IF for H so that, as is intuitive, when you learn E, you should increase your credence in H.[11]

Evidence-IF of evidence-*IF*, specified or unspecified, is evidence-IF under screening-off. Evidence-IF of evidence-*SF*, specified or unspecified, is evidence-IF under screening-off. The intuition of evidence of evidence being evidence is thus borne out with qualification.

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[11] (SOC2) is a condition for transitivity in evidence-IF, but *not* for transitivity in evidence-*SF*. See Roche (2012b). So even if in the case just given (i) E is evidence-SF for H** which in turn is evidence-SF for H and (ii) (SOC2) holds, it does not follow that E is evidence-SF for H.

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