# KNOWLEDGE, CERTAINTY, AND FACTIVITY: A POSSIBLE RAPPROCHEMENT

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ABSTRACT: In recent discussions in this journal, Moti Mizrahi defends the claim that knowledge equals epistemic certainty. Howard Sankey finds Mizrahi's argument to be problematic, since, as he reads it, this would entail that justification must guarantee truth. In this article, I suggest that an account of the normativity of justification is able to bridge the gap between Mizrahi's proposal and Sankey's objections.

KEYWORDS: justification (epistemic), normativity, logic (justification), factivity, knowledge, certainty

## 1. Summarizing the Discussion

Moti Mizrahi puts forth the following argument for *epistemic certainty*, an argument which relies on the standard notion of factivity:

1) If *S* knows that *p* on the grounds that *e*, then *p* cannot be false given *e*.
2) If *p* cannot be false given *e*, then *e* makes *p* epistemically certain.
3) Therefore, if *S* knows that *p* on the grounds that *e*, then *e* makes *p* epistemically certain.[1]

Since *p* cannot be false given *e*, epistemic certainty can be understood as a property of propositions rather than of rational agents.

Mizrahi accepts the normative role that evidence plays in determining whether a belief should count as knowledge. He writes:

> The fact that a truth is difficult for people to accept is not evidence against it. Some religious believers find it difficult to accept the theory of evolution by natural selection, since they think that the theory is inconsistent with their religious beliefs. But the mere fact that those religious believers find it difficult to accept the theory of evolution by natural selection is not evidence against the

[1] Moti Mizrahi, "You Can't Handle the Truth: Knowledge = Epistemic Certainty," *Logos & Episteme* X, 2 (2019): 225.

> theory itself.[2]

Furthermore, he rejects at least a variety of fallibilism, arguing that if we accept (3), we are committed to *e* securing knowledge that p.[3]

Howard Sankey objects that Mizrahi's argument "does not in fact proceed from the factivity of knowledge to knowledge being epistemic certainty."[4] Specifically, Sankey critiques (1). It is not, as Mizrahi claims, a premise about factivity, but rather, "[i]t is a claim about the relation between grounds (or evidence) and knowing."[5] The nature of that relationship is, as he notes, unclear. As he points out, the only thing really necessary for knowledge is truth.

In his reply to Sankey, Mizrahi agrees with Sankey that it is not possible to know a proposition that is false. However, unjustified propositions are also unknowable, Mizrahi notes. "[I]f *S* knows that *p*, then *p* must not only be true but also justified."[6] In other words, justification is implicit in claims to knowledge. Mizrahi then restates his argument without the appeal to *e*.

In Sankey's reply to Mizrahi's reply, he interprets Mizrahi's defense as claiming that "[i]t is not just that knowledge is factive, but that it is factive and requires justification" and that "Mizrahi takes the fact that knowledge requires both truth and justification to entail that justification must guarantee truth."[7] Tracing Mizrahi's argument, Sankey concludes that the level of justification required to conclude knowledge can be no less than certainty, a conclusion he finds problematic, for this would require that justification guarantee truth. He argues further that Mizrahi's contracted argument also fails, and that in the absence of a valid argument, we should assume that the infallibilist view of justification should not be believed.

An additional, though distinct, critique is offered by James Simpson. He argues that (2) of Mizrahi's original argument is false. To show why he thinks it is false, he presents the following scenario.

> **Math.** Suppose my mathematician dad, an honest and reliable fellow, tells me that 2+2=4. On this basis, I come to believe that 2+2=4.[8]

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[2] *Ibid*, 226.

[3] *Ibid*, 227.

[4] Howard Sankey, "Factivity or Grounds? Comment on Mizrahi," *Logos & Episteme* X, 3 (2019): 333.

[5] *Ibid*.

[6] *Ibid*, 444.

[7] Howard Sankey, "Why Must Justification Guarantee Truth? Reply to Mizrahi," *Logos & Episteme* X, 4 (2019): 446.

[8] James Simpson, "Knowledge Doesn't Require Epistemic Certainty: A Reply to Mizrahi," *Logos*

"2+2=4" is a necessary truth but, as Simpson argues, believing that "2+2=4" on the basis of testimony, even if that testimony is from an honest and reliable person, does not guarantee the truth of "2+2=4." If this is the case, then (2) of Mizrahi's argument fails.

## 2. Resolving Simpson's Objection

Before proceeding let's clear out Simpson's objection. He argues that in the case of a necessary truth like "2+2=4," believing it is true on the basis of reliable testimony is not enough to guarantee its truth, and thus it fails to be epistemically certain. However, Simpson himself notes that "what guarantees the truth of 2+2=4 isn't my dad telling me, in Math, that it's true that 2+2=4. It's that, in fact, 2+2=4."[9] He is right about this. But let's take this a step further: it is not possible that I could justifiably believe that "2+2=4" on the basis of my dad's testimony. Why is this the case? "2+2=4" is analytically true. When I understand the content of the proposition "2+2=4," I should immediately understand that it is true. In Math, when my dad transmits to me the proposition "2+2=4," if I understand the content of the proposition, then I immediately understand that it is true, without reference to the testimonial chain that led to my introduction to the proposition. In fact, the testimonial chain plays no normative role in regulating my belief and knowledge that "2+2=4." Simpson's objection to (2), then, is problematic.

## 3. What about *Normativity* Instead of *Certainty*?: A Rapprochement

As mentioned above, Mizrahi characterizes epistemic certainty as a property of propositions rather than of rational agents. A proposition is epistemically certain if a justification *e* is such that it guarantees that a rational agent *S* knows that *p*. One of Sankey's main quibbles with Mizrahi's argument is "Mizrahi takes the fact that knowledge requires both truth and justification to entail that justification must guarantee truth."[10] Sankey reacts against the kind of infallibilism promoted by Mizrahi's argument because he is skeptical about the nature of the relation between knowledge, justification, and truth. Specifically, he wonders whether justification should be included in our understanding of factivity. In what follows, I want to suggest a rapprochement between the Mizrahi's and Sankey's positions. Contra Mizrahi, I want to make the case that what we should really care about is the normativity of justification, rather than epistemic certainty. Contra Sankey, I

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*& Episteme* X, 4 (2019): 449.

[9] *Ibid*, 450.

[10] Sankey, "Why Must Justification Guarantee Truth," 446.

argue that justification is important to factivity and I give a brief account of how justification can play this role.

*Standard factivity*, which is what I will call the notion of factivity that has been assumed in this debate, is treated axiomatically in various formal logics. For instance, knowledge is represented as

$$\mathrm{K}a\varphi \rightarrow \varphi$$ [11]

which is the built out from the standard modal factivity axiom $\Box\varphi\rightarrow\varphi$. The knowledge formula is read informally as "if an agent *a* KNOWS that $\varphi$, then it is the case that $\varphi$." Knowledge implies truth, and truth is required for knowledge.

Hintikka[12] was among the first to use modal logics to express epistemic notions like the one in the previous paragraph. From his and others' formalizations into epistemic logic, Artemov and Fitting[13] developed a formal logic, Justification Logic, to help track the role that justifications play in knowledge ascriptions. Their Justification Logic builds on standard epistemic logic by "unfolding" the modal operator $\Box$ as the *justification variable*, *t*. For a logical formula *P*, the statement "*t* justifies *P*" is represented as *t*: *P*. The axioms familiar to modal logic have counterparts in Justification Logic. The axiom of modal logic $\Box F\rightarrow F$, read as "if it is necessarily the case that *F*, then *F*" Artemov and Fitting call the "Factivity Axiom" in Justification Logic. Consistent with the project of unfolding the necessity operator, $\Box$, of modal logic, the Factivity Axiom is stated as

**Factivity Axiom**: $t: F\rightarrow F$

How do Artemov and Fitting understand justification in relation to knowledge and, hence, truth? Let's call their position *justification factivity*, and it is characterized (at least partially) as follows: "Factivity states that justifications are sufficient to conclude truth."[14] They add elsewhere:

> Factivity is a strong assumption: justifications cannot be wrong. Nonetheless, if the justification is a mathematical proof, factivity is something mathematicians

[11] Rasmus Rendsvig and John Symons, "Epistemic Logic," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Summer 2019 (Metaphysics Research Lab, Stanford University, 2019), https://plato.stanford.edu/archives/sum2019/entries/logic-epistemic/: §2.6.

[12] Jaakko Hintikka, *Knowledge and Belief* (Ithaca: Cornell University Press, 1962).

[13] Sergei Artemov and Melvin Fitting, "Justification Logic," in *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Winter 2016 (Metaphysics Research Lab, Stanford University, 2016), https://plato.stanford.edu/archives/win2016/entries/logic-justification/; Sergei Artemov and Melvin Fitting, *Justification Logic: Reasoning with Reasons*, Cambridge Tracts in Mathematics 216 (Cambridge, New York, NY: Cambridge University Press, 2019).

[14] Artemov and Fitting, "Justification Logic," §2.5.

> are generally convinced of. If we think of knowledge as justified, true belief, factivity is built in. Philosophers generally understand justified, true belief to be inherent in knowledge, but not sufficient.[15]

Now, as Artemov and Fitting are quick to note, Justification Logic does not capture the whole of the discussion on justification in traditional epistemology. Standard discussions in epistemology about justification are often "from the ground up," i.e., concerned with how we can move from justification to knowledge. Justification Logic, on the other hand, is a "from the top down" approach: how can we characterize *justification* in actual cases of knowledge? Furthermore, Justification Logic, while providing a formalization of *justification*, "does not directly analyze what it means for $t$ to justify [a formula] $F$ beyond the format $t{:}F$, but rather attempts to characterize this relation axiomatically."[16] But Justification Logic is useful insofar as it attempts to formalize and structure the reasoning implicit in deliberations about justified belief.

How, then, can we analyze $t{:}P$ in terms of standard epistemological discourse? Let's explore two options here. First, since $t$ represents the unfolding of the $K$ operator in epistemic logic (which is itself and unfolding of the necessity operator $\Box$ of modal logic), $t{:}P$ is simply another way of representing $\mathbf{K}P$ (i.e., "$t$ justifies $P$" is the analysis of "$P$ is known" in Justification Logic). $t{:}P$, then, is just one way of representing knowledge.

Option two is this. Call $t$ the *justificans* and $P$ the *justificandum*. $t{:}P$ formalizes a basic assumption of the *justifies* relation between the justificans and justificandum, namely that it is a necessary relation. One may find this claim to be jolting. But by axiomtically characterizing the relation between the *justificans* and *justificandum* as necessary, Justification Logic is simply stipulating that that relation is necessary. As an axiom, we can't really prove that it is the case that relation is necessary. However, it does seem both possible and desirable to show that this relation coheres with our normal understanding of justification. The necessary relation between the *justificans* and the *justificandum* is related to our believing that $P$ on the basis of $t$. We can characterize this variously depending on the type of justification we have in mind. The situation is fairly straightforward on doxastic nonvoluntarism, e.g., reliablism, which is one way to characterize A's justification for her belief that $P$.

Consider the following scenario, borrowed from Jennifer Lackey.

> **PERCEPTION:** Estelle, Edwin, and I, who have been roommates for the past eight

[15] Artemov and Fitting, *Justification Logic: Reasoning with Reasons*, 24.

[16] Artemov and Fitting, "Justification Logic," §2.1; cf. Artemov and Fitting, *Justification Logic: Reasoning with Reasons*, 1-2.

> years, were eating lunch together at the dining room table in our apartment. When I asked Edwin to pass the wine to Estelle, he replies, "Estelle isn't here today." Prior to this disagreement, neither Edwin nor I had any reason to think that the other is evidentially or cognitively deficient in any way, and we both sincerely avowed our respective conflicting beliefs.[17]

"I" have a belief about Estelle's being present at the table. This belief was formed on the basis of normal perceptual practice, i.e., sight and hearing, and my visual and auditory percepts of Estelle give rise to my belief that Estelle is present with us. The crucial point at this juncture is this: it is *necessarily* the case that given my visual and auditory percepts of Estelle that I *believe* that Estelle is present at the table. It simply could not be the case that I could have percepts consistent with believing that Estelle is present without believing that Estelle is present. If it were to happen that I have percepts of Estelle but fail to believe she is present, we would surely think that something is wrong with my cognitive processing and, hence, I would fail to be justified in my belief that Estelle is not present. This serves to show that we typically think of the relation between the *justificans* and *justificandum* as *necessary*.

Voluntaristic views of belief-formation do not alter the picture radically. Suppose I am not sitting at the table with Edwin. I am in another room taking a nap while we wait for Estelle to arrive for dinner. She, Edwin and I plan to eat dinner and then go to a movie. I am awoken by the sound of the front door closing. I arise and enter the dining room, where I find two plates on the table and on the plates scrapes of food. On the coat rack I find a scarf that resembles Estelle's scarf. Edwin is nowhere to be found. I consider the evidence: the sound of the door, the dinner plates, Estelle's scarf. They ate dinner and left for the movie without me (and Estelle forgot her scarf)! On this evidential perspective, if my evidence $e$ justifies my belief that $P$.

One may object that in this scenario the evidence is polyvalent: since it is subject to alternate interpretations, the same evidence base may support another conclusion. It may be the case that after beginning dinner, they realized that there was no wine, so they quickly left to get more. Since it appears that belief that "Edwin and Estelle have left for the movies" ($P_{movies}$) and "Edwin and Estelle have left to get more wine" ($P_{wine}$) both are supported by $e$, $e$does not *necessarily* support $P_{movies}$ over $P_{wine}$. In other words, $e$does not conclusively support my believing one over the other. But for present purposes, that $e$ is not conclusive for $P_{movies}$ over

[17] Jennifer Lackey, "A Justificationist View of Disagreement's Epistemic Significance," in *Social Epistemology*, eds. Adrian Haddock, Alan Millar, and Duncan Pritchard (Oxford: Oxford University Press, 2010), 306.

$P_{wine}$ (or vice versa) does not change the picture: in both cases, $e$ as a generic evidence base necessarily (though only partially) justifies both. That is really all that we're after at this juncture. Of course, when deliberating about whether to believe $P_{wine}$ or $P_{movies}$, we acknowledge that evidence base $e$ is incomplete. $e$ will be necessary for whatever belief I end up forming, but I will need to gather additional evidence or make additional considerations over and above $e$ to support belief that $P_{movies}$ over $P_{wine}$, and vice versa. $e$ will not do the work by itself. Both $P_{movies}$ and $P_{wine}$ have conclusive evidence bases, $e_{movies}$ in the case of $P_{movies}$ and $e_{wine}$ in the case of $P_{wine}$. Both include $e$ but include other crucial pieces of evidence such that, taken together, they become necessary and sufficient to conclude that $P_{movies}$ or $P_{wine}$.

Thus, when an evidence base is complete, that evidence base necessarily justifies belief that $P$. If we want to be voluntarists about belief, my possession of evidence base $e$ does not guarantee that I in fact believe that $P$, but it would seem to be the case that my possessing evidence base $e$ obligates me to believe that $P$, such that failure for me to believe $P$ is a failure for me to meet my epistemic duties.

It seems to me that part of the issue is Mizrahi, in characterizing certainty as a property of propositions and not of agents, does not attend to the role that this characterization ought to play in the epistemic deliberations of agents.