# Williamson on Justification

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Abstract. Timothy Williamson has a marvelously precise account epistemic justification in terms of knowledge and probability. I'm going to argue that that account runs aground on certain cases involving the probability values 0 and 1.

## *1. Bayesian Evidentialism*

Williamson's theory of justification is evidentialist. To a first approximation, it says that for one to be justified in believing something is for that thing to be supported by one's evidence. Those who employ this evidentialist line of thought need to articulate theories of evidence. Theories of evidence are in the business of providing accounts of two things: evidence possession (when does one possesses a thing as evidence?) and the evidence-for relation (among the things one possesses as evidence, what are they evidence for?). Williamson produces specific accounts of both of these things, and thus provides a very nicely developed version of evidentialism.

With respect to evidence possession he conjectures the startling view that one possesses a thing as evidence just if that thing is a proposition one knows:

> knowledge is evidence: …knowledge, and only knowledge, constitutes evidence.[1]

He also thinks that

> evidence justifies belief: An epistemically justified belief which falls short of knowledge must be epistemically justified by something; whatever justifies it is evidence.[2]

Together these views entail that

> <u>knowledge justifies belief</u>: In any possible situation in which one believes a proposition *p*, that belief is justified, if at all, by propositions $q_1, \ldots, q_n$ (usually other than *p*) which one knows.[3]

This position uses the notion of knowledge to elucidate justification. As such it breaks from traditional epistemology, which uses the notion of justification to elucidate knowledge. This theoretical inversion promises many insights; I'll highlight two of them.

First, it suggests some reasons for thinking that knowledge is important. Philosophers of science often jettison talk of knowledge on grounds that justification and rationality are all that matters to the epistemology of science.[4] And among philosophers concerned with epistemology more generally, it is not unheard of to bracket questions about knowledge while addressing questions about justification.[5] But if knowledge is evidence and the justifier of belief, then the importance of evidence and justification brings the importance of knowledge along with it, and talk of evidence and justification brings talk of knowledge along with it. If knowledge is evidence and the justifier of belief, then knowledge gets respect!

The theoretical inversion of knowledge and justification also suggests a resolution of the Pyrrhonian problematic.[6] When is a belief justified? Only when one has a justifier for it. What justifies the justifiers? Supposedly, other justifiers. Infinite regress looms. Williamson stops the regress with knowledge: a belief turns out to be justified when it is supported by one's evidence, that is, by one's knowledge.

This heavy lifting needs help from a theory of the evidence-for relation. What does it take for something to be evidence for something else for a given person at a given time?

Williamson's answer is probabilistic. He thinks that for any person S and any time *t*, there is a unique "initial" distribution $P_i^{(s,t)}$ of probabilities to propositions. These distributions reflect the "intrinsic plausibility prior to investigation" of each proposition for S at *t*.[7] Given the notion of initial probability, we can state Williamson's account of the evidence-for relation[8]:

evidence-for: *e* is evidence for *h* for S at *t* iff $P_i^{(s,t)}(h \mid e) > P_i^{(s,t)}(h)$

Now, notice that if one's beliefs are justified by one's evidence, then they are justified by the totality of one's evidence: justification cannot come from a mere part of one's evidence, if the whole does not agree. Also notice that if evidence justifies a belief, then it does so by being evidence for that belief: *e* cannot justify *b* for S, if S possesses *e* as evidence but not as evidence for *b*. Along with the principle knowledge justifies belief, these two observations entail that one's belief *b* is justified only if the totality of one's knowledge is evidence for *b*. Employing evidence-for and letting *k* be the conjunction of propositions S knows at *t*, this can be expressed as

Bayesian evidentialism: S is justified in believing *h* at *t* only if $P_i^{(s,t)}(h \mid k) > P_i^{(s,t)}(h)$

This principle is a more precise replacement of our first approximation of Williamson's theory of justification. It only provides a necessary condition, of course; a full statement of the theory would provide sufficient conditions as well.

In providing these conditions it won't do to simply replace the 'only if' with an 'iff'. For one thing, evidence cannot justify belief by raising its probability only marginally. So in addition to converting the 'only if' to and 'iff', we should also replace the ">" with a ">>", or specify some minimal value by which $P_i^{(s,t)}(h \mid k)$ must be greater than $P_i^{(s,t)}(h)$, or make some other similar maneuver. For another thing, a proposition's probability might be raised significantly by one's evidence but still be low, indeed low enough that one is not justified in believing it. So we should further revise the account by adding a clause to the effect that $P_i^{(s,t)}(h \mid k)$ must be at least as high as some threshold value. Williamson doesn't explore either of these issues. Nonetheless, his theory does an admirable job of producing detailed principles where it is all too easy to settle for mere platitudes.

Despite these details, or more accurately because of them, the theory can be shown to have several specific problems. Before discussing these problems, we should take a closer look at the theory's foundations.

## *2. Initial probability*

What are Williamson's initial probabilities? They aren't one's immediately past degrees of belief, as we might understand the "prior probabilities" invoked by subjective Bayesians.[9] For certainly it is possible for one's immediately past degrees of belief to have failed to capture the current intrinsic plausibilities of the propositions at which they were aimed. Nor are Williamson's initial probabilities extents to which propositions are likely in light of one's evidence, as we might understand the "epistemic probabilities" invoked by various contemporary epistemologists.[10] Williamson recognizes those extents, but he calls them "evidential probabilities" and argues that they are the conditionalization of one's initial probabilities on the totality of one's knowledge.[11]

Since the term "intrinsic plausibility" seems fairly objective and applies to propositions, one might think that Williamson's initial probabilities are some sort of Carnap-style proportions of world-space in which given propositions are true. And in fact, some of Williamson's remarks suggest this interpretation. In a lucid application of initial and evidential probability to epistemic logic, he asks us to suppose that $P_i(p) = 1$ whenever *p* is true in all worlds, and that $P_i(p \vee q) = P_i(p) + P_i(q)$ whenever *p* and *q* are in no world both true. He also remarks that it is a "natural constraint" that $P_i(p) = 0$ only if *p* is true in no world, and even that the "most natural" initial distributions are those for which there is a finite number *n* of worlds, and $P_i(p) = m/n$ whenever *p* is true in exactly *m* worlds.[12] On this way of thinking about them, initial probabilities are something like degrees to which propositions are necessary.

Not everything Williamson says fits this necessity interpretation. In particular, he says that his concept of initial probability can "vary in extension between contexts".[13] Carnap-style degree-of-necessity concepts are not like that. Moreover, there are problems with the account of intrinsic plausibility to which the necessity interpretation gives rise. For instance, that account entails that every contingently true proposition *p* has less intrinsic plausibility as its corresponding necessarily true proposition *actually p*; but intuitively, such propositions are equally intrinsically plausible. Thus there are at least two good reasons for rejecting the necessity interpretation of Williamson's initial probabilities. But what other than degrees of necessity could these probabilities be?

Perhaps they are degrees of apriori plausibility. Nothing could be more apriori plausible for me now than the proposition that I exist now. So on the apriority interpretation, the proposition that I exist now has initial probability 1 for me now, despite its being contingent. Despite its having initial probability 1 for me now, it does not have initial probability 1 for you now: many things are more apriori plausible for you now. This apriority interpretation makes sense of Williamson's remarks that initial probabilities reflect the intrinsic plausibility "prior to investigation" of propositions, and that his concept of initial probability can "vary in extension between contexts". Moreover, its associated account of intrinsic plausibility is not subject to any obvious problems. But, on the other hand, it does not make sense of Williamson's application of initial and evidential probability to epistemic logic.

We needn't for our present purposes settle the matter of which interpretation is right, because they both make trouble for Williamson's theory of justification; or so I'll argue.

*3. Problems*

I'm going to exploit some familiar facts about the probability values 0 and 1. Say that $h$ is an intrinsic certainty for S at $t$ just if $P_i^{(s,t)}(h) = 1$, and that $h$ is an intrinsic falsehood for S at $t$ just if $P_i^{(s,t)}(h) = 0$. Then Williamson's theory of justification entails that we cannot be justified in believing intrinsic certainties or intrinsic falsehoods, and that we cannot have these things as our total justifying evidence. Let us explore these consequences one at a time, on each interpretation of initial probability.

(a). We can't be justified in believing intrinsic certainties. This follows from <u>Bayesian evidentialism</u> and the fact that if $P(h) = 1$, then $P(h \mid e)$ is either 1 or undefined. On the apriority interpretation, it means that one can't be justified in believing the maximally apriori plausible proposition that one exists now. On the necessity interpretation, it means that one can't be justified in believing the necessary proposition that water is $H_20$. And on both interpretations, it means that one can't be justified in believing the necessary, maximally apriori plausible theorems of arithmetic.

(b). We can't be justified in believing intrinsic falsehoods. This follows from Bayesian evidentialism and the fact that if $P(h) = 0$, then $P(h \mid e)$ is either 0 or undefined. It doesn't bring any particular grief on the apriority interpretation, because it is hard to see how one *could* be justified in believing contingent propositions whose falsity is maximally apriori plausible. But it does bring particular grief on the necessity interpretation. For it means that one cannot be justified in believing that water is not $H_20$, a necessarily false proposition whose falsity is not maximally apriori plausible. And it brings plenty of grief on both interpretations jointly, because it entails that one can never be justified in believing propositions whose falsity is necessary and maximally apriori plausible at once. Surely one can, contrary to this result, be justified in believing arithmetical falsehoods that have just been sanctioned by one's otherwise reliable calculator.

(c). Intrinsic certainties alone can't justify us in believing anything. This follows from Bayesian evidentialism and the fact that if $P(e) = 1$, then $P(h \mid e) = P(h)$.

Suppose that the entirety of one's knowledge consists in the proposition that one exists now. Then, on the apriority interpretation, one cannot be justified in believing anything, even the proposition that something exists now. Indeed, one cannot even be justified in believing the proposition that one exists now, despite knowing it and despite its being maximally apriori plausible. Or suppose that the entirety of one's knowledge consists in the proposition that water is $H_20$. Then, on the necessity interpretation, one again cannot be justified in believing anything, not even the proposition that water contains twice as much hydrogen as oxygen. Or suppose that the entirety of one's knowledge consists in the proposition that all squares are shapes. Then, on either interpretation, one cannot be justified in believing anything, even the proposition that if any squares exist then some shapes exist.

Perhaps it is impossible to know any of these things while not knowing anything else. Such knowledge-holism would, if true, blunt the force of the problem. But maybe it isn't true, and even if it is true, there may remain problematic cases in which the whole of one's knowledge consists in intrinsic certainties.

(d). Intrinsic falsehoods alone can't justify us in believing anything. This follows from <u>Bayesian evidentialism</u> and the fact that if $P(e) = 0$ then $P(h \mid e)$ is undefined. On the necessity interpretation, it also follows from <u>Bayesian evidentialism</u> alone, because falsehoods can't be known. Similarly on the apriority interpretation, given the plausible assumption that all propositions whose falsity is maximally apriori plausible for any person at any time are in fact false at that time.

Suppose that, on the basis of one's malfunctioning calculator, one forms a false belief *b* that the sum of a series of numbers is 3. Further suppose that *b* is at that point one's only resource for justifying other beliefs. On the apriority and the necessity interpretations both, *b* cannot justify one in believing that the square of the sum of the series is 9. Holism about justifiers may again blunt the force of the problem, but again such holism may be false and may not completely solve the problem even if it is true.

*4. Solutions*

These problems can't be solved by requiring for one to be justified in believing a proposition only that that proposition has a high initial probability for one. Nor can they be solved by requiring for one to be justified in believing a proposition only that the conditionalization of one's initial distribution on the totality of one's knowledge attributes a high probability to that proposition. These maneuvers would entail that everyone is justified in believing every intrinsic certainty and that no one is justified in believing any intrinsic falsehood. But certainly there are some complicated arithmetical theorems that you and I are not justified in believing; and certainly we are justified in believing the negations of some arithmetical theorems, at least when our calculators malfunction.

A different strategy for solving our problems is to refine the evidence-for principle. The proposition that Joe is in a club is evidence that he is single relative to the background information that the club is for singles, but not relative to the background information that the club is for married people. Therefore, the facts about what one has evidence for are sensitive to one's background information. In order to accommodate this sensitivity, Williamson sometimes appeals to a more complicated version of evidence-for.[14] Where $f_{ets}$ is S's background information for $e$ at $t$, the more complicated version is

refined evidence-for: $e$ is evidence for $h$ for S at $t$ iff $P_i^{(s,t)}(h \mid e \wedge f_{ets}) > P_i^{(s,t)}(h \mid f_{ets})$

Characterizing the contents of $f_{ets}$ is a difficult task. Whatever else they should do, such characterizations should entail that $f_{ets}$ can't include $e$. For if $f_{ets}$ does include $e$, then it follows from refined evidence-for that $e$ is not evidence for anything for S at $t$.

In order to satisfy the constraint that $f_{ets}$ not include $e$, Williamson conjectures that one possesses $p$ as background information for $e$ iff $p$ is a conjunct in the conjunction ($k$ -

*e*) of propositions obtained by removing *e* from one's total knowledge.[15] This account of background information possession lets us restate refined evidence-for as

refined evidence-for*: *e* is evidence for *h* for S at *t* iff $P_i^{(s,t)}(h \mid e \wedge (k - e)) > P_i^{(s,t)}(h \mid k - e)$

The refinement of evidence-for compels us to refine Bayesian evidentialism as well, lest the latter fail to respect the sensitivity of confirmation to background information. Since one's background information for *e* is (*k* - *e*), one's background information for *k* is (*k* - *k*). For the same reasons that evidence-for entails Bayesian evidentialism, then, refined evidence-for* entails

refined Bayesian evidentialism: S is justified in believing *h* at *t* only if

$$P_i^{(s,t)}(h \mid k \wedge (k - k)) > P_i^{(s,t)}(h \mid k - k)$$

This new principle can save Williamson's theory from our problems only if sense can be made of (*k* - *k*), the set obtained by removing one's total knowledge from one's total knowledge.

Belief revision theorists, since they take belief corpuses to be closed under consequence, would take (*k* - *k*) to have the logical truths as its conjuncts.[16] But this view collapses refined Bayesian evidentialism into its unrefined counterpart, because it makes $P_i(k - k)$ equal 1 on both interpretations of initial probability; therefore it leaves our problems intact. Another view is that "(*k* - *k*)" is an empty name because there is nothing left once one has removed one's total knowledge from one's total knowledge. But this view makes refined Bayesian evidentialism into a meaningless attempt to attribute an initial probability to something that does not exist; and meaningless principles are grounds for rejecting the theories from which they follow.

Nor do there seem to be any other intuitive views of (*k* - *k*). The upshot is that the refined version of Williamson's theory of justification either has all the problems we showed to plague its unrefined counterpart, or has other problems that are worse. Nor can the refined theory be saved via changes to its account of background information possession. For if either P(*h*) or P(*e*) is 1 or 0, then $(e \wedge f)$ cannot raise P(*h*) any more than does *f* itself, for any proposition *f*. Background information sensitivity isn't going to solve our problems.

Perhaps we should look for a different *kind* of solution. Williamson is quite aware of the facts about the probability values 0 and 1 that drive our problems. This suggests that he would view our problems as an artifact of his Bayesian idealization, and thus simply one of the prices to be paid for its precision and simplicity. At one point he seems to advocate this idealization response, at least insofar as it concerns mathematical examples:

> We are using a notion of probability which…is insensitive to differences between logically equivalent propositions. We therefore gain mathematical power and simplicity at the loss of some descriptive detail (for example, in the epistemology of mathematics): a familiar bargain.[17]

But at another point he seems to reject the idealization response by saying both that we can have evidence for mathematical propositions, and that we can have mathematical propositions as evidence for other propositions:

> ...our evidence for a mathematical conjecture may consist in mathematical knowledge…It does not matter what kind of proposition p is…All knowledge is evidence.[18]

So Williamson may or may not advocate the idealization response. Should we advocate that response ourselves? Not if we are traditionalists. Traditional epistemology takes counterexamples to be sufficient for refuting theories. But the idealization response asks us to hold on to a theory while acknowledging that that theory has counterexamples.

That is a radical maneuver. It is not just a choice to theorize about a specific, small topic as opposed to a broader one. That sort of choice is often made in traditional epistemology. Indeed, Williamson's theory makes such choices. For instance, it idealizes away from issues about *which of one's actual beliefs are justified*, by taking as its subject matter the distinct and more circumscribed topic of *what one is justified in believing*.[19] But the type of idealization required to answer our problems is cut from a different cloth entirely. Our problems concern the topic that the theory takes as its subject matter in the first place, not some other broader topic. To answer *these* problems by saying that they are an artifact of the theory's idealization is to hold on to the theory while also admitting that it has counterexamples – which is quite antithetical to philosophical tradition.

Maybe we shouldn't be traditionalists. Maybe there are cases in which the precision and simplicity purchased by counterexamples is worth the price. Indeed, Williamson's theory of justification may provide us with such a case. But I'm not going to argue about that here. My purpose here is just to highlight a price that Williamson's precise and simple theory is going to have to pay.[20]

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[1] Williamson (2000: 185). Helpful alternative discussions of evidence possession include Feldman (1988, 1992, 2004), Foley (1993: 189-197), and Swinburne (2001: 133-151).

[2] Williamson (2000: 208).

[3] Williamson (2000: 185).

[4] Earman (1993).

[5] Pollock (1999).

[6] Williamson (2000: 186).

[7] Williamson (2000: 211).

[8] Williamson (2000: 186-187, 221). At some points he seems equally inclined to adopt a more complicated principle that is sensitive to background information (221). At other points he seems to actually favor the other principle (186). I'll address that other principle in section 4.

[9] Howson and Urbach (1993).

[10] Epistemic probability has been explored by Plantinga (1993: 150-151), Swinburne (2001: 66-69), and Fumerton (2004), among others.

[11] Williamson (2000: 212, 220).

[12] Williamson (2000: 224-225). Compare the measure $m^{\dagger}$ in Carnap (1950).

[13] Williamson (2000: 211).

[14] See especially Williamson (2000: 221).

[15] See Williamson (2000: 9-10, 186, 212). Also see Joyce's (2004: 297) interpretation of Williamson on this issue. Howson and Urbach (1993: 404-406) appeal to a similar "removing" function in attempting to defend their form of Bayesianism from the problem of old evidence.

[16] Gärdenfors (1988).

[17] Williamson (2000: 212). Compare his (2005: 479-483) response to Hawthorne's (2005: 455-457) worries about the interplay between knowledge, evidential probability, and decision theory.

[18] Williamson (2000: 207).

[19] This is the phenomenon picked out by the notion of "propositional" justification as opposed to "doxastic" justification. For an influential attempt to motivate this terminology, see Firth (1978).

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