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Motivating Williamson's Model Gettier Cases

The austerity of formal models is both an attraction and a hazard. An elegant formal model can strip away everything that is irrelevant to a problem to isolate the factors that really matter. But sometimes so much is stripped away that we are left with ideas whose motivations and plausibility are unclear. As far as elegance is concerned, it is hard not to like Williamson's way of modeling the possibility of Gettier cases. He uses just two briefly stated constraints to generate a class of models in which there will be justified true beliefs falling short of knowledge. These constraints are simple, but they carry a surprising amount of epistemological weight—enough weight, in fact, to generate worries about the dark side of austerity. Some unstated assumptions about the relationship between appearance and reality seem to figure in the background of Williamson's article. More detailed discussion of these assumptions could perhaps contribute to clarifying the plausibility of his constraints and to explaining the origins of Gettier cases.

Williamson's models depict knowledge of a conveniently narrow type, knowledge of a parameter (such as temperature) that varies along a single dimension. In his idealization, agents are assumed to have an experience that delivers a precise apparent value for this parameter, on the basis of which they can at best know the real value to be within a certain range. Worlds in the idealization are identified with ordered pairs of the real and apparent

values of the parameter; pairs of these worlds may be related via epistemic accessibility relation R. R(w) is the set of worlds accessible from w, or equivalently, the strongest proposition known at w.

Williamson's first constraint might be called Modesty.

#1. {<f,f>} ⊂ R(<f,f>)

This constraint places an upper bound on what can be known through appearances (it also expresses a commitment to the factivity of knowledge, but that aspect will be taken as uncontroversial). Even in the world in which appearance and reality precisely match, Williamson's agent does not know the exact value of the parameter. It is epistemically possible to this agent that appearance and reality precisely match, but she does not rule out all worlds in which there is a failure of precise matching. The motivation supplied for this constraint is that there are limits to the acuity of perception, or as Williamson puts it, 'the agent's perceptual apparatus is not perfectly discriminating. For example, when the temperature is 30.0006 degrees, she does not know that it is not 30.0007 degrees.' (8) In saying the agent's perceptual apparatus is not perfectly discriminating, Williamson seems to be giving a restatement of the controversial side of Modesty rather than a reason for it. He does not mean that the perceptual apparatus delivers an imprecise impression, given that he is willing to assume, if only for the sake of simplicity, that the appearance is perfectly precise (6-7). Nor is there anything in Williamson's characterization of belief to mandate the softening from a precise value into a range: it is compatible with what he says about belief that an agent could believe that the parameter is exactly as it appears. In saying that the perceptual apparatus is not perfectly discriminating, Williamson appears to

mean 'discriminating' in a strictly epistemic sense: the apparatus does not supply the agent with knowledge of the precise value.

Modesty is not obviously implausible, and it doubtless receives some intuitive support from the example involving temperature, but one might hope to find a more general reason for accepting it, especially given the relationship between this principle and Williamson's characterization of what ideal agents believe. There is arguably a tension between Modesty and Williamson's claim that the agents in his models base their beliefs strictly on appearances: 'although an agent's beliefs could be sensitive to factors other than appearance, we focus on agents who do not base their beliefs on such factors' (15). One might object that the only agents whose beliefs are really sensitive to no factors other than appearance are those who believe that things are exactly as they appear. The judicious move of believing that a parameter is just within some range of its apparent value, rather than rashly believing that it is exactly as it seems, suggests a sensitivity to something more than the isolated appearance itself. In particular, it suggests a sensitivity to one's own limitations in forming appearance-based beliefs, or more precisely, a sensitivity to appearances' potential for slight treachery.

In restraining herself to believe that the real value is not necessarily identical to the apparent value, but just within some appropriate range of it, the agent can make it the case that her belief, if true, is not just accidentally true. But there are limits to what the agent can achieve by her own agency. In forming non-trivial appearance-based beliefs, Williamson's agent can exercise discretion to protect herself from the slight treachery of mildly inaccurate appearances but not from the gross treachery of more dramatically wrong appearances.

If—as Williamson assumes—reality and appearance can diverge arbitrarily, the agent who has an appearance-based belief cannot always protect herself against the possibility that her belief is false just through her own discretion. (She could protect herself from having false appearance-based beliefs by suspending judgment and forming no such beliefs, but to do this would be to succumb to skepticism.) However, there is no reason to assume that the agent's agency has to do all the work in protecting her from ignorance. Presumably, in worlds in which reality and appearance are close, this closeness itself works to protect our agent from the possibility of false judgment: the grossly treacherous possible worlds in which reality is far from appearance are too remote to make her judgment unsafe.

The value of the agent's sensitivity to her limitations can be highlighted by thinking of the bold agent who shares with our more judicious agent the Modest belief that the real value of the parameter is in a certain range, but does so on the basis of deducing it from his bold belief that reality and appearance exactly match. If this latter belief does not constitute knowledge, there is arguably something amiss with this agent's embrace of the former. It is possible that an agent who has the dangerous stronger belief might have the weaker belief on a different and more wholesome basis, although such differences in basing are not easily represented in models of the sort Williamson is using, in part because of the logical omniscience these models presuppose. To construct a very clear case in which the weaker proposition is known, we need to consider an agent who does not believe any dangerously stronger propositions from which it could be inferred. Williamson presents the exclusion of such beliefs as a matter of convenience ("there is no relevant reason to attribute to her beliefs that fail to constitute knowledge in <*f,f*>"), but something more forceful might be appropriate. There is a positive reason to deny that the exemplary agent has any beliefs

about the parameter that exceed the threshold for knowledge; if any of her parameter beliefs are insensitive to her limitations, they threaten to cast a shadow on the epistemic status of the others.

Modesty plays a crucial role in the generation of Gettier cases of the sort Williamson locates with his models. To pursue his particular strategy of showing that the strongest proposition known in one world might be true and justified but not known in another, Williamson needs to exclude knowledge of propositions which are each true in only one of his worlds, such as the proposition that the real and apparent value of the parameter are both *f*. Not just any understanding of the relationship between appearances and reality would make this move a legitimate one. In Stoic epistemology, for example, the sage is able to make perfectly precise judgments about reality on the basis of appearances. The Stoics secure this result at the price of having to make some rather aggressive metaphysical claims, for example that all things exhibit perceivable differences, even eggs and grains of sand. One pertinent consequence of the Stoic approach to the relationship between appearance and reality is that this approach bars the possibility of Gettier cases: the sage must refrain from judgment whenever appearances fall short of guaranteeing knowledge, so no belief that fails to constitute knowledge would be justified.

If we think that slight differences in reality can easily issue in the same appearance, however, then we have some reason to move towards Modesty. Williamson has elsewhere (2000, ch.4) motivated such a move by drawing a connection between knowledge and safety. If we refrain from forming the maximally bold belief that the parameter has the exact value it seems to have, and judge instead only that it is within some range of this

value, then our judgment will be safer, in the sense that it would still be true even if reality were slightly different. Knowledgeable judgments about matters such as the parameter are formed in such a way that slight slippage between appearance and reality will not render them false.

In making allowances for some slippage between appearance and reality, Williamson's ideal agent is sensitive to her limitations. But one might wonder about the possible extent of this slippage, and about the possible depth of the agent's sensitivity to it. Williamson's assumptions here deserve close scrutiny. First, he assumes that apparent and real values can diverge arbitrarily, and this assumption plays a role in his argument that it must be possible for knowledge to differ between worlds sharing the same appearance. He points out that for any non-trivial proposition *p* about the real value of our parameter, *p* will be true in some worlds and false in others. Considering an agent in a world <*e,f*>, Williamson relies on the assumption that there can be worlds with any combination of real and apparent values for our parameter in order to specify some *f*-appearing worlds in which *p* is true and some in which *p* is false. Once that move is made, then given that we accept the factivity of knowledge, the insistence that the same things are knowable in any two worlds with the same appearance does indeed have the consequence that nothing non-trivial could be known about the real value of our parameter. Williamson contends that the only way to avoid this "crass skepticism" is to allow that there may be differences in what is known between worlds sharing an appearance. This may indeed be the most reasonable way to stave off crass skepticism, but it is not the only way, and it may be instructive to highlight another path that might have been taken.

If there were metaphysical limits on the distance between appearance and reality, Williamson's argument would not go through: we could not generally assume the existence of worlds sharing an *f*-appearance with any arbitrary real value. If furthermore the agent knew these limits, then she could know various non-trivial things about our parameter on the basis of appearances. For example, if the maximum distance between the apparent and real temperature were known by the agent to be 5C, then crass skepticism would no longer follow from the demand that what is known has to march in lockstep with appearances: although a range of different real values might accompany an apparent value of 10C, the agent could presumably still know on the basis of that appearance the non-trivial fact that, say, the temperature was not 20C.

Williamson's way of establishing the existence of Gettier cases depends partly on the thought that knowledge can vary between worlds in which appearances remain constant. The crass skepticism argument can support this thought if we assume that the potential distance between appearance and reality is unrestricted; to see how much weight is borne by that assumption, it is useful to think about how the next step in his argument might stand in its absence.

In explaining how knowledge might vary across worlds with the same appearance, Williamson introduces his second constraint, which I shall call Distance. The idea behind this "natural postulate" is that appearance-based knowledge diminishes as appearances move further away from reality. Where d(*e,f*) measures the difference between real value *e* and apparent value *f*,

#2 $d(e,f) \leq d(e^*,f)$ if and only if $R(\langle e,f\rangle) \subseteq R(\langle e^*,f\rangle)$

According to Williamson, "the rationale for #2 is that any increase in the gap between appearance and reality has an epistemic cost for the agent: more knowledge is lost" (10). Again, this looks like an informal gloss or restatement of the constraint rather than an independent reason to accept it. Williamson is not committed to saying that Distance is always satisfied; indeed, he emphasizes that he is not presenting it as "an exceptionless law of epistemology". However, he does label it as "a natural idealization of a wide range of cases" (10), and we might wonder exactly what it is about knowledge that is supposed to make Distance a plausible idealization of many cases rather than an arbitrary stipulation that happens to serve Williamson's purposes.

Once again safety considerations come to mind as a possible motivation. As the gap between appearance and reality widens, our appearance-based judgments about reality incur greater and greater risk of falsity. When the temperature is and seems to be 10C, our appearance-based judgment that it is between 5C and 15C is not only true but safely true: it would be true even if reality had been slightly different. When the temperature is 10C but seems to be 14C, our appearance-based judgment that it is between 9C and 19C is still true but looks riskier: if reality were slightly different, it would be false. This way of thinking about safety could lead one towards the conclusion that an apparent temperature of 10C would yield more knowledge the closer the real temperature was to 10C.

However, this way of thinking about safety presupposes something about the agent's grasp of the general relationship between appearance and reality. Consider our hypothetical agent for whom the distance between apparent and real temperature is (and is known by the agent to be) 5C at most. Let us suppose that whenever the apparent

temperature in Celsius is n, the strongest belief he forms about the temperature is always that it is in the range [n-5, n+5]. Appropriately informed by his knowledge of the outer limits of the appearance-reality gap, such beliefs are plausibly characterized as justified; furthermore, these beliefs will never be false. For this agent, would it still be true that knowledge could vary between worlds sharing an appearance?

One might be tempted to say that nothing significant has changed by introducing knowledge of the margin of error: as our agent approaches the edge of the margin, there are close possible worlds in which the proposition he believes is no longer true. Consider the world in which the real temperature is 10.1C, the apparent temperature is 15.1C, and our agent believes that it is in the range [10.1, 20.1C]. This 10.1C world might seem to be uncomfortably close to a world in which the real temperature is 10C and the agent's belief is false. However, our agent in the <10.1C, 15.1C> world is not in fact at risk of forming a false belief that the temperature is greater than 10C. Given the limits of our agent's margin of error, if the temperature were to be 10C, it would not appear to him to be 15.1C—there is no possible <10, 15.1> world, and he knows this. If safety requires just that one could not easily have formed a false belief by making a judgment on a similar basis, then our agent is safe. Following a line of thought proposed by Selim Berker (2008), we can admit that when we approach the edge of the margin of error there are nearby worlds in which the proposition our agent believes is false, but we can also insist that these do not threaten his knowledge, because they are not worlds in which he forms a belief in that proposition. By limiting himself to propositions within his known margin of error, our hypothetical agent never forms an appearance-based belief in such a way that he could easily have gone wrong. He has non-trivial appearance-based knowledge of the temperature, and for any

appearance, what he knows about it remains fixed even as the gap between reality and appearance widens out to the known maximum. Thanks to his knowledge of the size of his margin of error, our hypothetical agent violates Distance without falling into crass skepticism.

The Modesty constraint works for agents who make allowances for some possible slippage between reality and appearance without giving up on non-trivial appearance-based belief altogether; the Distance constraint works for agents who do not know the extent of this possible slippage. The kind of Gettier cases that arise from these two constraints would have to arise in agents who have some real but limited sensitivity to the gap between appearance and reality. How plausible is it that we find ourselves in this zone, at least for appearance-based judgments?

Some support for locating ourselves there could be found in the psychology of perception. Perceptual signals carry information about parameters such as temperature, but they also carry information about possible slippage between appearance and reality. Signals differ from each other not only in giving different values for environmental parameters, but also in their clarity, duration and intensity; variation in these latter dimensions gives rise to higher or lower fluency, where fluency is a subjective feeling of greater or lesser ease of cognitive processing. Variations in this metacognitive experience play a crucial role in judgment: where perception is less fluent, we have less confidence in our judgments, and try to engage in further evidence collection before making up our minds (Alter & Oppenheimer, 2009; Oppenheimer, 2008). The connection between fluency and confidence is adaptive because fluency tells us something about the likely risks of

being misled by perceptual impressions: as appearances become less reliable, perceptual appearances generally become weaker and harder to process. Fluency is a marker of one's margin of error.

Williamson's idealized appearances are maximally specific in the sense that they present exactly one value of parameter. For psychological realism, each appearance should furthermore have some specific level of fluency. Taking the tactile detection of temperature as an example, optimally fluent perceptions will involve the stimulation of areas rich in thermoreceptors, such as the palm of the hand, and will have a moderate duration: overly brief exposures yield insufficient thermoreceptor stimulation and overly long exposures trigger adaptation, diminishing the accuracy of perception (Schepers & Ringkamp, 2009). Two agents who each experience an object as having an apparent temperature of 10C are not necessarily equally justified in their beliefs about the temperature of this object: in general, the one who has a more fluent experience will be better able to narrow the range within which the object's temperature lies.[1] It is assumed that perceptual justification demands sensitivity to the apparent value of the environmental parameter; it is very plausible that perceptual justification also demands sensitivity to the metacognitive dimension of experience. Ideally, we are more or less restrained in our judgments as our perceptual experience is more or less fluent, and we learn about our margins of error in roughly the same way as we learn about environmental parameters: through patterns of

[1] This empirical generalization arguably does something to explain the intuitive plausibility of Distance; however, it is no simple matter to adapt Distance to reflect metacognitive experience. One of the complications here is that belief itself is not simply a function of the apparent value of the epistemic parameter, but is sensitive also to the fluency with which this parameter is experienced. Less fluent experiences make it less likely the agent will form an outright belief. But if belief drops off as the gap between appearance and reality widens, then knowledge will diminish both because less is believed and because approaching the edge of the margin of error increases the risk of false belief.

experience. Our capacity for learning in this way about the slippage between appearance and reality explains why we would realistically conform to a principle like Modesty rather than blindly attempting the precision of the Stoic sage and hoping to be lucky. The fact that our margins for error are variable—for temperature, higher when an object is brushed with an elbow than touched with the hand—puts us in a more complicated position than our hypothetical agent who knows his fixed margin and gets to violate Distance.

Our position is further complicated by the fact that the size of one's variable margin of error on any occasion is itself assessed on the basis of a fallible cue. Any given experience can be misleading either in its environmental or its metacognitive dimension. One can have a very clear and fluent perceptual impression—say of a barn—in conditions where one is in fact at high risk of forming a false belief. Even if the proposition one comes to believe on the basis of this impression is true, and even if nothing that was subjectively available should have triggered the caution of a closer inspection, such a belief would still be no more than accidentally true. The problem is not that appearances are deceptive with respect to the state of the world, but that they are deceptive with respect to the level of evidence collection the agent needs to undertake to make her belief safely true.

I have argued that it is psychologically plausible to suggest that ordinary justified perceptual judgments reflect some real but imperfect sensitivity to our limitations. Furthermore, the motivations behind the classical JTB theory themselves point in the direction of accepting this characterization of our predicament. The original motivation behind the J-condition was the avoidance of accidentally true belief. If the justification condition were seen as involving nothing more than pure sensitivity to environmental

appearances, then unless different appearances were uniquely correlated to different realities in the way the Stoics thought, it would be possible for us to be just accidentally right in our justified beliefs. But if the T condition of the classical analysis is to be non-redundant, advocates of the analysis must admit the possibility of justified false belief, ruling out views like Stoicism. The thought that knowledge is incompatible with accidentally true belief then supports accepting a constraint like Modesty: we can exercise our restraint to ensure that our beliefs are not so closely tied to appearances that slight variations in the distance between reality and appearance would render them false. But if knowledge requires sensitivity to one's limitations as well as to appearances, epistemologists face a choice. Making the relevant limitations transparent to the agent would make it possible for the agent to form appearance-based beliefs very safely—indeed so safely that he could not have a justified false belief. If the agent's limitations are less than transparent, however, then his best efforts to judge within those limitations are not guaranteed to keep him safe. If he is judging within, but not safely within, these fallibly grasped limitations, then his belief will fall short of knowledge in the way that Williamson predicts.[2]

References

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