

## What Williamson's Anti-Luminosity Argument Really Is\*

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**Abstract:** Williamson argues that when one feels cold, one may not be in a position to know that one feels cold. He thinks this argument can be generalized to show that no mental states are such that when we are in them we are in a position to know that we are in them. I argue that his argument is a sorites argument in disguise because it relies on the implicit premise that warming up is gradual. Williamson claims that his argument is not a sorites argument; I explain why he has not given us any reason to accept the claim.

It is obvious to most of us that when we feel cold, we are in a position to know that we feel cold, and when we do not feel cold, we are in a position to know that we do not feel cold. To deny it seems absurd. This does not mean that we are always in a position to know whether we feel cold or not, for it is not true that we either feel cold or do not feel cold — sometimes we feel something in between. The expression 'feels cold', like the expression 'bald', is vague and admits of borderline cases. Timothy Williamson in his *Knowledge and Its Limits* has, however, offered an argument trying to show that even when we clearly feel cold, we may not be in a position to know that we do (Williamson, 2000, Chapter 4).<sup>1</sup> In his terminology, feeling cold is not a *luminous* condition. As he defines it, a condition is luminous if and only if "whenever it obtains (and one is in a position to wonder whether it does), one is in a position to know that it obtains" (p.13). Williamson's more ambitious thesis is that "[f]or virtually no mental state S is the condition that one is in S luminous" (p.14). Although he does not offer a

general argument for this thesis, he believes that his argument against the luminosity of the condition of feeling cold can easily be generalized and applied to other supposedly luminous mental conditions. If Williamson were right, then not only could we feel cold without being in a position to know that we feel cold, we could also feel hungry without being in a position to know that we feel hungry or feel itchy without being in a position to know that we feel itchy.

In this paper I will argue that Williamson's anti-luminosity argument fails because it is no more than a sorites argument in disguise. Williamson is aware of this objection and tries to defuse it; I will explain why he has not offered us any reason to believe that his argument is not a sorites argument. Some critics have attacked an epistemological idea Williamson employs in his argument, the idea that reliability is required for knowledge. Instead of arguing against the reliability requirement, I will show that it is not doing the work Williamson thinks it is doing in his anti-luminosity argument. Whether reliability is required for knowledge, Williamson's argument is still a sorites argument in disguise.

## I

Williamson considers a series of conditions that take place at a series of times  $t_0, t_1, \dots, t_n$  at one millisecond intervals: S feels cold at  $t_0$ , gradually warms up, and does not feel cold at  $t_n$ . Let  $\alpha_i$  be the case at  $t_i$ , where  $0 \leq i \leq n$ .<sup>2</sup> Williamson's argument relies heavily on the following premise, which will be the focus of our discussion:

(C) If in  $\alpha_i$  one knows that one feels cold, then in  $\alpha_{i+1}$  one feels cold.

Williamson assumes that throughout the process S thoroughly considers whether she feels cold (p.97). If the condition of feeling cold is luminous, then S is in a position to know that she feels cold when she feels cold. If S is in a position to know that she feels cold and thoroughly considers whether she feels cold, then she knows that she feels cold. On the assumption that the subject thoroughly considers the matter throughout the process, we can ignore the difference between knowing and being in a position to know. We can thus express the luminosity of the condition of feeling cold this way:

(L) If in  $\alpha_i$  one feels cold, then in  $\alpha_i$  one knows that one feels cold.

If (L) is true, then S knows that she feels cold at  $t_0$ . This, together with (C), implies that S feels cold at  $t_1$ . By applying (L) again, we get the result that S knows that she feels cold at  $t_1$ ; and by applying (C) again, we get the result that S feels cold at  $t_2$ . It is easy to see that we can apply (L) and (C) this way to  $\alpha_3, \alpha_4, \alpha_5$ , and so on, until we arrive at  $\alpha_n$ , where the result is that S feels cold at  $t_n$ . Since it is not true that S feels cold at  $t_n$ , it seems that either (L) or (C) must be false. This is a *reductio* argument, and the question is whether we should reject (L) or (C).

By arguing for (C), Williamson tries to convince us that (L) must be rejected. The key idea in his argument for (C) is that confidence without reliability cannot be knowledge. Suppose S knows that she feels cold at  $t_i$ . According to Williamson, S is thus at least reasonably confident at  $t_i$  that she feels cold at  $t_i$  and her confidence is reliably based.<sup>3</sup> At  $t_{i+1}$ , that is, one millisecond later, S is almost equally confident that she feels cold. Since her confidence at the two times is almost the same, she must feel cold at both times for such confidence to be reliably based. In other words, if S felt cold at  $t_i$  but did not feel cold at  $t_{i+1}$ , her confidence at  $t_i$  would not be reliably based. Given that her

confidence at  $t_i$  is reliably based — given that she knows that she feels cold at  $t_i$  — she must feel cold at  $t_{i+1}$ . If Williamson is right about all this, then (C) is true.

Some critics have argued against Williamson's argument for (C) by giving counterexamples to the idea that reliability is required for knowledge.<sup>4</sup> Their criticism has some force, but it may not be decisive against Williamson's conclusion that the condition of feeling cold is not luminous, for (C) appears to be true even if reliability is not required for knowledge. It is hard to imagine that S knows that she feels cold at  $t_i$  (and hence feels cold at  $t_i$ ) but does not feel cold one millisecond later. If (C) is in fact true, then even if Williamson's argument for (C) — the one that appeals to the requirement of reliability — does not work, we may still have to agree with him that (L) should be rejected.

## II

Williamson is right that (C) is true, but he is wrong about why it is true. The truth of (C) does not depend on the requirement of reliability on knowledge. It depends, as I will show, on the fact that the process of warming up is gradual, that is, that one does not change from feeling cold to not feeling cold in a very short period of time. 'In a very short period of time' is surely vague, but in this context it refers to at most a few seconds. Since what Williamson considers in his argument is the change in a millisecond, let us focus on the fact that one does not change from feeling cold to not feeling cold in a millisecond. For simplicity, I will use 'the gradualness of warming up' to refer to this fact. It takes more than a millisecond for us to warm up even when we walk out of a snowstorm into a really warm house. This is simply a fact about how the human body works: whether we feel cold or not depends partly on our body temperature, and it takes

more than a millisecond for our body temperature to rise to such an extent that we change from feeling cold to not feeling cold.<sup>5</sup>

To see how the truth of (C) depends on the gradualness of warming up, let us consider the following premises:

- (1) If in  $\alpha_i$  one knows that one feels cold, then in  $\alpha_i$  one feels cold.
- (2) If in  $\alpha_i$  one feels cold, then in  $\alpha_{i+1}$  one feels cold.

The truth of (C) follows from the truth of (1) and (2). (1) is true because knowledge is factive; (2) is simply an expression of the fact that the process of warming up is gradual.<sup>6</sup> Given that (1) and (2) are together sufficient for (C), the requirement of reliability on knowledge is not necessary for (C). That is, even if reliability is not required for knowledge, (1) and (2), and hence (C), can still be true.

Worse still, the requirement of reliability on knowledge is not sufficient for (C) either: even if reliability is required for knowledge, (C) will not be true if (2) is false. In other words, (2) is necessary for (C). To see why, let us imagine that (2) is false — imagine that the process of warming up is abrupt rather than gradual, and abrupt in such a way that one can change from feeling cold to not feeling cold in a millisecond. Suppose S knows, and hence is confident, that she feels cold in  $\alpha_i$ ; if reliability is required for knowledge, then S's confidence is reliably based. Now suppose S has such an abrupt change that she does not feel cold in  $\alpha_{i+1}$ . There is no reason to suppose that S is confident that she feels cold in  $\alpha_{i+1}$  when she does not feel cold in  $\alpha_{i+1}$ , for the abrupt change may be such that she feels *very warm* in  $\alpha_{i+1}$ . S's confidence that she feels cold in  $\alpha_i$  is still reliably based, but this implies only that when she is equally confident in another case that she feels cold in that case, she has to be correct that she feels cold in

that case;  $\alpha_{i+1}$  is, however, not such a case. So, if the process of warming up were not gradual, then even if reliability is required for knowledge, (C) would be false because there would be cases in which S knows that she feels cold in  $\alpha_i$  while she does not feel cold in  $\alpha_{i+1}$ .

Since the requirement of reliability on knowledge is neither necessary nor sufficient for (C), and since (2) is necessary for (C), Williamson's anti-luminosity argument should be considered an unnecessarily complex sorites argument in disguise. What makes it a sorites argument is that it depends, via (C), on (2), that is, on the gradualness of warming up to derive the false conclusion that S feels cold at  $t_n$ . 'If in  $\alpha_i$  one feels cold, then in  $\alpha_{i+1}$  one feels cold' is comparable to 'If with  $i$  hairs on one's head one is bald, then with  $i + 1$  hairs on one's head one is bald', which figures in the standard example of a sorites argument. If Williamson's anti-luminosity argument is nothing but a sorites argument, we can understand it as merely presenting us with a paradox and do not have to reject (C) or (L). What makes the argument unnecessarily complex is that (2) alone can do the trick: we can derive the false conclusion that S feels cold at  $t_n$  from (2) by starting with the fact that S feels cold at  $t_0$ . In that case, (L) does not even have to figure in the argument and we thus do not have to reject it because of the false conclusion that S feels cold at  $t_n$ .

### III

Williamson denies that his anti-luminosity argument is a sorites argument, though he admits that the reasoning is "very reminiscent of that in sorites paradoxes" (p.102). His reason for insisting that it is not a sorites argument is that even if we sharpen the vague expression 'feels cold' to get rid of borderline cases, the considerations about

reliability will “remain as cogent as before, for they were based on our limited powers of discrimination amongst our own sensations, not on the vagueness of ‘feels cold’” (pp.103-104). On the basis of this he claims that, unlike sharpening ‘bald’, which yields a false instance of the principle ‘With  $i$  hairs on one’s head one is bald only if with  $i + 1$  hairs on one’s head one is bald’, sharpening ‘feels cold’ does not yield any false instance of (C).

When Williamson says the considerations about reliability will not be affected even if ‘feels cold’ is sharpened, he seems to mean this: even if there are no borderline cases of ‘feels cold’, it is still true that if one is equally confident that one feels cold in two different cases, and if in one of these cases one knows that one feels cold, then in the other case one must feel cold in order for the confidence to be reliably based. If this is what he means, then he is right. This does not, however, imply he is also right that sharpening ‘feels cold’ does not yield any false instance of (C).

It is indeed not entirely clear why Williamson thinks sharpening ‘feels cold’ does not yield any false instance of (C). Let us try to figure out his reasoning. Williamson considers the following way of sharpening ‘feels cold’: we use a physiological condition to resolve borderline cases, a condition that can be determined to obtain or not by some technological means. He assumes that the subject of the process of warming up has no access to the technology and hence is not in a position to know whether the condition obtains. Suppose that S is equally confident in  $\alpha_i$  and in  $\alpha_{i+1}$  that she feels cold, and that  $\alpha_{i+1}$  is (while  $\alpha_i$  is not) a borderline case *before* ‘feels cold’ is sharpened. Now if in  $\alpha_{i+1}$  the physiological condition obtains, then, applying the way of sharpening ‘feels cold’ that Williamson considers, S does feel cold in  $\alpha_{i+1}$ . In that case, her confidence that she feels

cold in  $\alpha_i$  is reliably based and she may know that she feels cold in  $\alpha_i$ . If in  $\alpha_{i+1}$  the physiological condition does not obtain, then S does not feel cold in  $\alpha_{i+1}$ . In that case, her confidence that she feels cold in  $\alpha_i$  is not reliably based and she does not know that she feels cold in  $\alpha_i$ . So, no false instance of (C) results from sharpening 'feels cold' this way. Since the same reasoning applies to other ways of sharpening 'feels cold', Williamson concludes that sharpening 'feels cold' does not yield any false instance of (C).

If the requirement of reliability on knowledge were sufficient for (C), we would have reason to accept Williamson's conclusion, for what he has shown is that sharpening 'feels cold' does not affect the reliability requirement. But we have already seen that even if reliability is required for knowledge, (C) will not be true unless the process of warming up is gradual. Thus, even if Williamson is right that the reliability requirement is not affected by sharpening 'feels cold', it does not follow that (C) is not affected. In fact, I am going to show that sharpening 'feels cold' does yield a false instance of (C) by virtue of yielding a false instance of (2).

I have argued that what makes Williamson's anti-luminosity argument a sorites argument is that it depends on the gradualness of warming up to derive the false conclusion that S feels cold at  $t_n$ . It is widely accepted among philosophers that sorites paradoxes arise from application of vague predicates. This is exactly why Williamson responds to the charge that his anti-luminosity argument is a sorites argument by trying to show that sharpening 'feels cold' does not affect his argument. How is, some may ask, the gradualness of warming up related to the vagueness of 'feels cold'?

If what makes a predicate vague is that it admits of borderline cases because there is no sharp boundary between cases to which the predicate applies and cases to which it

does not, then the answer to the above question is rather simple: the process of warming up cannot be gradual unless ‘feels cold’ is vague. The process of warming up is a temporal sequence of conditions at very short intervals (as we have been assuming, one millisecond intervals) in which the degree of feeling cold is decreasing and which ends with a condition of not feeling cold. The process cannot be gradual if there are two immediately adjacent conditions such that the earlier one is a condition of feeling cold while the later one is a condition of not feeling cold. In other words, the process cannot be gradual unless there is no sharp boundary between the conditions in the temporal sequence to which ‘feels cold’ applies and those to which it does not — unless ‘feels cold’ is vague.<sup>7</sup>

Accordingly, if ‘feels cold’ is sharpened to get rid of borderline cases, the process of warming up cannot remain gradual — there must be two immediately adjacent conditions in the temporal sequence such that the earlier one is a condition of feeling cold while the later one is a condition of not feeling cold. Such immediately adjacent conditions constitute a false instance of ‘If in  $\alpha_i$  one feels cold, then in  $\alpha_{i+1}$  one feels cold’ (i.e. a false instance of (2)). Since (2) is necessary for the truth of ‘If in  $\alpha_i$  one knows that one feels cold, then in  $\alpha_{i+1}$  one feels cold’ (i.e. the truth of (C)), a false instance of the former implies a false instance of the latter. Williamson is blind to this fact because he thinks, wrongly, that the requirement of reliability on knowledge is sufficient for (C).

Since what Williamson has shown is at best that sharpening ‘feels cold’ does not affect the reliability requirement, rather than that it does not yield any false instance of (C), he has failed to show that his anti-luminosity argument is not a sorites argument.

IV

So far I have been assuming that Williamson agrees that the process of warming up is gradual; in fact, he describes the process he considers in his argument as one in which the subject “very slowly warms up” (p.96). Nevertheless, it is questionable whether he does accept this piece of commonsense. Williamson is known for his epistemic account of vagueness according to which vagueness is a type of ignorance, that is, vague predicates in fact have sharp boundaries, and we mistakenly think there are borderline cases simply because we do not know where those boundaries lie.<sup>8</sup> If he applies such an account to ‘feels cold’, he has to say that there are no borderline cases of ‘feels cold’ and hence that there are two immediately adjacent conditions in the process of warming up such that the earlier one is a condition of feeling cold while the later one is a condition of not feeling cold. Indeed, he speaks of “*apparent* gradualness in the process” of warming up (p.99, italics added) and describes the gradualness in epistemic terms: “one’s feelings of heat and cold change so slowly during this process that one *is not aware of any change in them over one millisecond*” (p.97, italics added).

At one point in his exposition of the anti-luminosity argument it is actually quite clear that Williamson does not take the process of warming up to be gradual. In explaining why the luminosity assumption ((L)) should be rejected, he suggests that we “pick  $j$  and  $k$  such that  $0 \leq j \leq k \leq n$ ; for each  $i$ , evaluate ‘One feels cold’ as true in  $\alpha_i$  if and only if  $i \leq k$ , and otherwise as false; evaluate ‘One knows that one feels cold’ as true in  $\alpha_i$  if and only if  $i \leq j$ , and otherwise as false” (p.105). On this suggestion, there is a sharp boundary between feeling cold and not feeling cold: one feels cold up to  $k$ , and ceases to feel cold *right after*  $k$ . Williamson’s point here is that once (L) is dropped, the

false conclusion that S feels cold at  $t_n$  does not follow from (C) and other premises. What Williamson does not notice is that (and this is a point I have already made) the false conclusion does not follow from (C) and other premises anyway once the process of warming up is assumed to be abrupt rather than gradual.

If Williamson does think that the process of warming up is not gradual, it is presumably because of his epistemic account of vagueness. It should be noted that the epistemic account of vagueness implies that the condition of feeling cold is not luminous, for it implies that what we take to be borderline cases of 'feels cold' are merely cases in which we *do not know* whether 'feels cold' applies or not when it in fact does or does not apply. Williamson claims, however, that his anti-luminosity argument does not depend on the epistemic account of vagueness (p.103, note 3). In any case, an appeal to the epistemic account of vagueness would not help his anti-luminosity argument at all, for it would render the argument superfluous given that the conclusion that the condition of feeling cold is not luminous follows directly from such an account of vagueness.

Some may think this means only that Williamson has done something superfluous, but it does not matter to his conclusion because he still has a valid, and simpler, argument against luminosity, namely, the one that is based on the epistemic account of vagueness. The problem is, the epistemic account of vagueness seems far more controversial than (L). We have more reason to accept (L) than to accept the epistemic account of vagueness and reject (L).

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### References

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### Notes

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<sup>1</sup> Page references in parentheses in the text refer to this book.

<sup>2</sup> I am following Williamson's terminology here. A case, as Williamson defines it, "is a possible total state of a system, the system consisting of an agent at a time paired with an external environment" (p.52).

<sup>3</sup> It seems possible that a person knows that  $p$  but is not confident that  $p$  is true, but for the sake of argument let us grant that knowledge implies confidence.

<sup>4</sup> See, for example, Brueckner and Fiocco 2002 and Neta and Rohrbaugh 2004. The discussion in Neta and Rohrbaugh 2004 focuses on the notion of safety (from error) rather than the notion of reliability, but both notions as used by Williamson belong to the same family of related notions (see Williamson 2000, section 5.3).

<sup>5</sup> This is of course a simplification. When we have a fever, our hypothalamus — the part of the brain that serves as the body's 'thermostat' — is affected and we feel cold when our body temperature is rising and feel hot when our higher than normal temperature is starting to fall. The more general point here is that any bodily change that is causally responsible for our changing from feeling cold to not feeling cold takes more than a millisecond. Now even if there are exceptions to this, our discussion will not be affected: we can take Williamson's argument to be based on cases in which the process of warming up is in fact gradual.

<sup>6</sup> I take (2) to say no more than that one does not change from feeling cold to not feeling

cold in a millisecond. If (2) implies that there is no end to feeling cold, then it is part of a sorites paradox. This does not in any way weaken my argument, for what I am trying to show is precisely that Williamson's anti-luminosity argument is a sorites argument in disguise.

<sup>7</sup> It should be noted that it does not follow that 'feels cold' cannot be vague unless the process of warming up is gradual. Even if we jumped from feeling cold to not feeling cold in one millisecond whenever we warmed up, there could still be borderline cases of 'feels cold'.

<sup>8</sup> See Williamson 1994.