

A defence of anti-criterialism

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ABSTRACT

According to philosophical orthodoxy, there are informative criteria of identity over time. Anti-criterialism rejects this orthodoxy and claims that there are no such criteria. This paper examines anti-criterialism in the light of recent attacks on the thesis by Matt Duncan, Sydney Shoemaker and Dean Zimmerman. It is argued that those attacks are not successful. Along the way, a novel strategy to defend anti-criterialism against the critics' most challenging objection is developed. Underappreciated difficulties for criterialism are also raised which, I claim, there is no obvious way to solve. It is concluded that anti-criterialism may be a much stronger rival to criterialism than is often supposed.

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Anti-criterialism is the thesis that there are no non-trivial, informative criteria of diachronic identity.¹ The thesis has come under attack recently from Duncan (2014), Shoemaker (2012) and Zimmerman (1998).² The main purpose of this paper is to show that the existing arguments against anti-criterialism are not compelling. I will sketch one version of anti-criterialism and defend it against the objections.³ I will then raise an overlooked difficulty criterialism faces.

§1 sketches the version of anti-criterialism to be defended, gives its central motivation and explains some of its features. §2 responds to Duncan's contention that anti-criterialists must deny that there are informative metaphysically sufficient conditions for persistence. §3 responds to the claim that anti-criterialism has absurd consequences. §§4&5 consider an epistemological problem the theory faces and develop a novel response. Finally, §6 shows that criterialism faces a similar epistemological problem but has no obvious way to solve it.

1. An anti-criterialist position

Anti-criterialism denies that there are non-trivial, informative criteria of diachronic identity. It implies that for any given object, O, there are no non-trivial,

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informative conditions which are individually metaphysically necessary and jointly metaphysically sufficient (just metaphysically necessary and sufficient from now on) for *O* existing at a time *t* to be identical with an object *O** existing at some other time *t**.⁴ Anti-criterialists may agree to there being *trivial* and *uninformative* metaphysically necessary and sufficient conditions. For instance, they may agree that *O's being identical with O* and existing at t and t** and *O's existing at t, O*'s existing at t* and O's sharing O*'s haecceity* (if there are haecceities) are each metaphysically necessary and sufficient. But the former is trivial and the latter is uninformative in the sense that knowing whether objects have the same haecceity seems to rely on knowing whether they're identical. What anti-criterialism denies is that there are any non-trivial, informative metaphysically necessary and sufficient conditions.⁵

In addition to the above central claim, the version of anti-criterialism to be defended here contends that many popular criterialist theories propose criteria that are neither metaphysically necessary nor metaphysically sufficient. For instance, consider a cat, *Tibbles*, existing at a time, *t*. For *Tibbles* to persist is for *Tibbles* to be identical with an object, *Tibbles**, existing at some other time, *t**. Criterialists might urge that necessarily *Tibbles* persists iff *Tibbles* has a biological continuer at some other time, *t**.⁶ But on this version of anti-criterialism, having a biological continuer is neither metaphysically necessary nor metaphysically sufficient for *Tibbles* to persist. On this view, there is a weird possible world in which *Tibbles* goes out of existence at one time and comes back into existence later, there being no biological continuity between her two incarnations. And, there is a weird possible world in which *Tibbles* loses a hair one day and *poof* she's gone. Another cat, biologically continuous with *Tibbles*, persists in place of her, growing a new hair and digesting the mouse that was in *Tibbles's* stomach.⁷ Thus, cat-identity isn't metaphysically glued to biological continuity at all on this view – it *floats free*.

The motivation for this claim I derive from Merricks's argument for anti-criterialism (1998, §V).⁸ According to Merricks, *Tibbles existing at t and being biologically continuous with Tibbles* existing at t** is a distinct state of affairs from *Tibbles existing at t and being identical with Tibbles* existing at t**; the relata are the same but the relations are different. Call these states of affairs *T* and *T**, respectively. Since *T* and *T** are contingent and distinct, we should expect one to be able to obtain in the absence of the other (and *vice versa*) unless there is compelling reason to think otherwise. As Merricks notes, the general principle appealed to – *for distinct contingent states of affairs, we should believe that the one could occur without the other unless there is compelling reason not to* – is reasonable and underlies much of our thinking about what is possible. Hence, all parties have a *prima facie* reason to believe that for *Tibbles*, persisting and having a biological continuer do not necessarily go together. And likewise for any other relations one might substitute in for biological continuity.

To my knowledge, no criterialists have affirmed that T and T* (or similar pairs) are *identical* states of affairs. Their distinctness seems to follow straightforwardly from the observation that they involve *distinct relations*.⁹ Rather, criterialists typically affirm that T *constitutes* or *grounds* T*, i.e. there is a metaphysical relation – constitution or grounding, etc. – that glues the two states of affairs together preventing one from occurring without the other. This view still faces Merricks's argument: for distinct, contingent states of affairs, we ought to believe that they are *not* metaphysically glued together unless there is compelling reason to think otherwise. The question, then, is whether there is compelling reason to think otherwise in cases like T and T*. Criterialists need such reasons to rebut the *prima facie* case for anti-criterialism. We will look at two attempts in §§3–5.

As Merricks (1998, §VII) points out, anti-criterialism does *not* imply that Tibbles could be identical with any kind of object whatsoever existing at another time. The idea that Tibbles's identity floats free from other conditions is consistent with, for instance, Tibbles being essentially a cat. The latter view implies that Tibbles is a cat whenever she exists – at all times and at all possible worlds. It implies that Tibbles could not be identical with a cardboard box existing at t* for no cardboard box counts as a cat. Granting (for the sake of the argument) that Tibbles is essentially a cat, what this anti-criterialist view affirms is that Tibbles existing at t may be identical with a cat existing at t* whether or not she is, say, biologically continuous with such a cat.

Since anti-criterialism is consistent with Tibbles being essentially a cat, it is also consistent with there being non-trivial, informative, metaphysically necessary conditions for Tibbles to persist. For if Tibbles is essentially a cat, then Tibbles cannot persist into the future if there are no living things in the future.

Nor does this position imply that there are no non-trivial, informative metaphysically *sufficient* conditions for Tibbles to persist. We've seen that having a biological continuer is not metaphysically sufficient for Tibbles to persist, on this view. Nonetheless, there may be worlds with *contingent laws* whereby having a biological continuer (with no-branching, perhaps) *guarantees* Tibbles's survival. Consequently, having a biological continuer *together with the holding of some such law* yields a metaphysically sufficient condition for Tibbles's survival.¹⁰

Still, we've already said that Tibbles can persist on this view even if she has no biological continuer. So, the above metaphysically sufficient condition is not metaphysically necessary. So, the core anti-criterialist thesis – that there are no non-trivial, informative metaphysically *necessary and sufficient* conditions for an object's persistence – isn't violated.

2. Metaphysically sufficient conditions for persistence

The *prima facie* case for anti-criterialism affirms that we should believe of distinct, contingent states of affairs that they are not metaphysically glued together unless there's good reason to think otherwise. Matt Duncan's recent attack on

anti-criterialism supplies a reason. He argues, roughly put, that in the case of an ordinary person it is *absurd* to think their persistence is not *metaphysically guaranteed* by the qualitative relations that usually accompany our persistence. This claim will be spelt out and considered in detail in §3. Here, we will consider a preliminary claim of Duncan's which contradicts something said in the previous section. Duncan claims: *anti-criterialism implies that there are no informative metaphysically sufficient conditions for persistence.*

Duncan offers two lines of argument for this. Here's the first. Take a normal person, Sam. Suppose that having a biological continuer were metaphysically sufficient for his persistence. The most natural explanation for this would be that Sam is essentially a biological entity. But then, having a biological continuer would plausibly also be metaphysically necessary for Sam's persistence. In that case, we'd have a non-trivial, informative metaphysically *necessary and sufficient* condition for Sam's persistence, contrary to anti-criterialism.

There are two weak points in this argument. Firstly, according to the anti-criterialist view being defended, having a biological continuer is *not* metaphysically sufficient for Sam's persistence. At best, having a biological continuer *together with a relevant contingent law holding* (i.e. one which glues Sam's persistence to biological continuity) is metaphysically sufficient for his persistence. This difference is important. The latter sufficiency condition tells us little about what kind of entity Sam is essentially. To see this, consider somebody who thinks Sam is essentially an immaterial soul which is only contingently embodied. She rejects the idea that having a biological continuer is metaphysically sufficient for Sam's persistence, for she believes that Sam could perish by his soul being destroyed even though his body continues. She agrees with Duncan, then, we may suppose, that if biological continuity *on its own* were metaphysically sufficient, that would suggest Sam is essentially a biological entity. However, she accepts that having a biological continuer *together with the holding of the kind of contingent law mentioned* is metaphysically sufficient for his persistence. All that tells us is that at any possible world in which having a biological continuer is (contingently) nomologically sufficient for souls to persist, Sam's persistence is guaranteed by his having a biological continuer. It doesn't conflict with Sam's being essentially a soul whose persistence can possibly float free from biological continuity.

The second problem is that even if anti-criterialists grant that Sam is essentially a biological entity, as they might, they needn't accept that having a biological continuer is metaphysically necessary for his persistence. Sam's being essentially a biological entity implies that he is a biological entity at all times and at all worlds at which he exists. Duncan seems to assume it *also* implies that necessarily Sam persists only if he has a biological continuer. But this is precisely the kind of assumption anti-criterialists can be expected to *reject* (e.g. Merricks 1998, §IV). Recall the claim made earlier that even if Tibbles is essentially a cat (and hence, presumably, essentially biological), she could be identical with a

future cat which she is not biologically continuous with (or indeed fail to be identical with a cat she *is* biologically continuous with). Duncan offers no supporting argument for his assumption to the contrary. So, anti-criterialists don't yet have any reason to accept his assumption.

Duncan's second line of argument for the preliminary claim imagines anti-criterialists affirming that there are multiple distinct informative metaphysically sufficient conditions for Sam's persistence none of which are metaphysically necessary. That's the anti-criterialist view being defended here. On this view, for all sorts of conditions, *C*, condition *C* obtaining together with a law, *L*, holding whereby *if C obtains, then Sam persists* is an informative metaphysically sufficient condition for Sam to persist. This view also implies that Sam can possibly persist in the absence of *any* informative metaphysically sufficient condition – otherwise the disjunction of the metaphysically sufficient conditions would be metaphysically necessary and sufficient (Duncan 2014, 287). In cases where Sam persists in the absence of any informative metaphysically sufficient condition, Duncan points out that there would only be *uninformative* metaphysically sufficient conditions for his persistence, such as *Sam's persisting* (p. 288).

Against this view, Duncan argues that if the uninformative metaphysically sufficient condition accounts for Sam's persistence in cases where there is no informative metaphysically sufficient condition, and if it is also present in *all* possible cases in which Sam persists, then any informative metaphysically sufficient conditions for Sam's persistence would be redundant. He writes,

[i]t's not clear why one would need to appeal to something like biological or psychological continuity in order to fully explain Sam's persistence through time. (p. 288)

Consider a possible world, *w*, at which Sam persists, then. Suppose there is a contingent law, *L*, at *w* such that human beings persist if they have a biological continuer, yielding an informative metaphysically sufficient condition for Sam's persistence: *L holding and Sam having a biological continuer*. Duncan argues that such a condition would be redundant as an explanation of Sam's persistence given anti-criterialism. After all, Sam's persistence can be explained adequately at some worlds (where no informative metaphysically sufficient conditions apply) merely by citing the uninformative metaphysically sufficient condition of *Sam's persisting*. Since that same condition holds at *w*, it should explain Sam's persistence adequately at *w* too on its own.

One way anti-criterialists can respond is by challenging the redundancy claim. At worlds where there are only uninformative metaphysically sufficient conditions, it seems better to say that Sam's persistence is a brute fact which cannot be explained at all rather than that it can be 'fully explained' by appeal to an uninformative condition. If so, an explanation of Sam's persistence at *w* appealing to his having a biological continuer together with the holding of law *L* would not be redundant.

But even if it's granted that the uninformative condition *does* explain Sam's persistence at *w*, at best it provides a trivial and uninformative explanation. So, an explanation appealing to an informative condition would not be redundant in the sense of *being no use*. As an informative explanation, it would potentially be more useful than the alternative uninformative explanation.

Still, if the uninformative condition *does* (fully) explain Sam's persistence at *w*, one might object to there being an additional informative explanation at *w* simply because *it is not needed* and, hence, is redundant in *that* sense. But there is no blanket ban on having more than one explanation for a given phenomenon. The surplus arises in this case because the anti-criterialist position is an instance of a more general phenomenon that seems genuinely possible. The general phenomenon is: (a) there being a world, w_1 , and property, *F*, such that the only metaphysically sufficient conditions for a thing's *F*-ness which are satisfied at w_1 are uninformative conditions (like *its being F*), and (b) there being another world, w_2 , at which something's being *F* is (contingently) nomologically guaranteed by its having some other (in this context, informative) property, *G*. Any instance of this will give rise to the same kind of redundancy. Now, it is true that we often try to avoid explanatory redundancy in our theories. This is because having multiple explanations is less elegant and because a single explanation is often more probable. But in cases of the general kind just described, there seems no good reason to avoid the redundancy: it is a harmless result of a phenomenon that, on the face of it, seems possible. So unless the redundancy is held to tell against this kind of phenomenon altogether, which seems doubtful and would need to be argued for, it cannot be held to tell against anti-criterialism.

I conclude that neither of Duncan's arguments shows that anti-criterialists must deny there are non-trivial, informative, metaphysically sufficient conditions for persistence.

3. Absurd consequences?

Duncan eventually rejects anti-criterialism on the grounds that it has *absurd consequences*. He writes:

Recall Sam. Sam is a perfectly normal person at time *t*. Now, suppose that all of the psychological, phenomenal, physical, biological, and any other qualitative (i.e. non-identity-assuming) connections that normally obtain in an average persisting person, connect Sam at *t* with ... Sam* at *t** ... [W]e might even suppose that a single, continuous phenomenal stream connects Sam at *t* and Sam* at *t** ... Finally, the connections between Sam and Sam* are *non-branching*. Sam and Sam* are continuous *only* with each other. (p. 289)

According to the version of anti-criterialism under discussion, none of this is metaphysically sufficient for Sam at *t* to be identical with Sam* at *t**. Recall the example given in §1 in which Tibbles loses a hair and *poof* she's gone; another

distinct cat biologically continuous with Tibbles replaces her and begins growing a new hair etc. The same goes for Sam on this view. Duncan writes:

This result is absurd. It's absurd to think that someone – or a series of someones – could be just like a normal persisting person in every single qualitative way and yet not be a persisting person. It's unbelievable that all of the psychological, phenomenal, physical, biological, etc. states of a person at a particular time could continue (unbroken and undivided) in the normal fashion without that person persisting. If such things were possible, then you or I could be in Sam's shoes! ... These results are absurd. (p. 290)

If right, this is bad news for anti-criterialism. The *prima facie* case for anti-criterialism affirms that unless there's good reason to think otherwise, we should believe that *Sam existing at t being identical with somebody existing at t** is not metaphysically guaranteed by *Sam existing at t bearing all the qualitative relations that normally accompany the diachronic identity of human beings to somebody existing at t**. But Duncan claims there is good reason to think otherwise: *that belief is absurd!*

Others have raised similar lines of argument. Shoemaker complains that given anti-criterialism, a qualitative duplicate of a career of an object of kind K can fail to be a career of an object of kind K.¹¹ Hence, a qualitative duplicate of an ordinary persisting person could turn out to be a succession of short-lived persons. Shoemaker also makes the point that given anti-criterialism a career of a K could have causally unrelated parts – like the example from §1 in which Tibbles gets destroyed and subsequently comes back into existence, the latter incarnation being causally unrelated to the former incarnation. Shoemaker remarks:

These are, to put it mildly, highly counterintuitive consequences. (p. 126)

And he takes such consequences to tell strongly against anti-criterialism.

Zimmerman argues in similar vein that given anti-criterialism the diachronic identity of macrophysical objects would not supervene globally on microphysical facts (if it supervened, there'd be non-trivial, informative (albeit potentially extremely complex) criteria of identity (see p. 290)).¹² Consequently, there could be a succession of short-lived persons whose careers collectively are qualitatively indistinguishable at the microphysical level from the actual career of an ordinary persisting person. Zimmerman describes the denial of microphysical supervenience as 'truly heroic' (p. 295) and says that it is 'too wild to countenance as a possibility' (p. 293).

The objections have the same form. First, they point out that according to anti-criterialism diachronic identity floats free from something else. They then argue that this is 'absurd,' 'highly counterintuitive' or 'too wild to countenance.' My response will focus on Duncan's argument, but it applies to Shoemaker's and Zimmerman's too.

Duncan finds the following idea absurd:

(AC) Possibly Sam exists at t , bears all the qualitative relations which (at the actual world) ordinarily accompany a person's persistence to an individual, Sam*, existing at t^* , but is not identical with that individual.

The anti-criterialism being defended here embraces (AC). And anti-criterialists are entitled to press their critics for the reason why it is supposed to be absurd. Duncan offers no real explanation – he simply claims that it *is* absurd (pp. 289–292). And this omission leaves him open to the charge of begging the question.

One way to make good on the absurdity claim would be to show that (AC) is self-contradictory or self-evidently false. But neither of these is very plausible. Certainly, it is not obvious that (AC) is self-contradictory, so an argument would be needed to establish this, and none has so far been offered.¹³ It is also not obvious that (AC) is self-evidently false. It is self-evidently false that *possibly a ball which is red all over is simultaneously green all over*. Once that proposition is understood, reason assures us, without the need for further justification, that it must be false. It seems *incoherent* to imagine a ball being red all over and green all over simultaneously. But having understood (AC), reason does not assure me that the proposition is false, and the idea that Sam and Sam* could be distinct despite bearing the qualitative relations mentioned does not strike me as incoherent.

The critic could try urging that while (AC) may not be self-evidently false, it is nonetheless absurd in the sense of being *very implausible*. But what makes (AC) implausible? If it is simply asserted that Sam and Sam* *would have to be* identical if they bore to each other the qualitative relations described, then we are back to begging the question.

Of course, it isn't always possible to avoid begging the question. If one's opponent refuses to accept any arguments one offers no matter how reasonable, one may have to fall back on the claim that the opponent is simply incomprehensible. But criterialists cannot plausibly claim to be in this position. (AC) has not been found to be self-contradictory, self-evidently false, incoherent or incomprehensible. So anti-criterialists have not gone beyond the pale by taking it seriously. If (AC) *is* absurdly implausible, we are owed a non-question begging explanation why.

Another option would be to argue that (AC) is absurd (i.e. implausible) *because it plainly violates common sense*. Since violation of common sense is, arguably, a theoretical cost, this would threaten to damage anti-criterialism if the accusation sticks. To begin responding, anti-criterialists can distinguish between (AC) and the following weaker claim:

(B) Sam exists at t , bears all the qualitative relations which (at the actual world) ordinarily accompany a person's persistence to an individual, Sam*, existing at t^* , but is not identical with that individual.

I think *this* claim offends common sense. It is absurdly implausible to think there are *actually* cases like this. And that suggests not only that there are no such cases but that there could not easily have been – i.e. that there are

none at nearby possible worlds. But from the fact that a non-modal claim is absurdly implausible, it doesn't follow that it's *impossible*. Moore (1903) famously regarded idealism as an affront to common sense. But few would consider the implausibility of idealism to show that it's impossible.

The critic could respond that while idealism offends common sense, *the possibility* of idealism does not. However, not only does (B) offend common sense, (AC) (which asserts its possibility) does too, it might be urged. But anti-criterialists won't concede that the falsity of (AC) is dictated by common sense. And if the critic simply insists that common sense *does* rule-out (AC), then we are back to begging the question again. Furthermore, it has already been argued that (AC) does not seem to be self-contradictory, self-evidently false, incomprehensible or incoherent. So, anti-criterialists are not unreasonable in taking (AC) seriously or expecting critics to provide a substantial argument to *show* that it is false.

I conclude that, although popular, this general line of criticism – that claims like (AC) can be rejected as 'absurd' or 'too wild to countenance' – does not inflict any real damage.

4. An epistemological objection

Duncan (pp. 290–291), Shoemaker (p. 126) and Zimmerman (p. 292) do, however, all indicate a more promising line of attack. Once propositions like (AC) are granted, the question arises of how we can know that we are identical with the people who bear the relevant qualitative relations to ourselves in the past and future. If my identity can float free from psychological continuity and biological continuity, etc. on what basis can I confidently claim to be the person who began writing this paper? As Shoemaker puts it:

It is hard to see how on this view we could have any justified beliefs about the persistence of [objects] through time. (p. 126)

Anti-criterialists won't want to accept that our beliefs about diachronic identity are unjustified. The consequence would plainly put their theory at logger-heads with common sense and so would be a serious cost. It would also give critics a response to the *prima facie* case for anti-criterialism which urges us to deny that an object's persistence is metaphysically glued to other conditions unless there is good reason to think otherwise. If justification for our beliefs about persistence depends on this metaphysical gluing, that alone will provide one good reason to think otherwise.

In the next section, I'll offer a response to this difficulty. But first it will be worth making some preliminary remarks. According to the anti-criterialism being defended, there are possible worlds where people bearing all the qualitative relations that ordinarily accompany our persistence are distinct. Nonetheless, it's also possible on this view that *at the actual world* a contingent law holds which ensures people bearing those relations are in fact identical. This isn't enough to solve the present problem though. Unless we are justified in

believing such a law holds, our ordinary identity-judgements will not have been rescued. Furthermore, it's not clear how we *could* be justified in believing such a law holds (Zimmerman 1998, 292). After all, numerical identity isn't something observable like colour. We cannot confirm that our identity is anchored to the relations in question by simply *observing* that it is. Nor do we have any brute intuitions about identity that bypass the senses. Indeed, as Zimmerman puts it,

There'd be no way to tell the difference between a world at which the law holds and one in which it does not. (p. 293)

Anti-criterialists cannot dismiss this worry as unduly sceptical. Sceptics complain when evidence fails to meet their exceptionally high standards. They would complain, for instance, that even when very many As are observed to be Bs, and no counterexamples are found, *that* evidence doesn't guarantee that *all* As are Bs and so doesn't warrant belief in the generalisation. But consider a non-sceptic with moderate standards. She may admit that observing many As to be Bs (without exception) warrants belief in the generalisation. The empirical evidence meets her moderate standards. However, she may doubt whether those standards can be met in the present case. As noted, we cannot observe identity. So we cannot point to any observations of identity accompanying the qualitative relations mentioned to support the alleged law. It's not just that the empirical support falls short of sceptical standards; there does not seem to be any empirical support at all! So if there is reason to think the law holds, critics are entitled to press anti-criterialists to explain what that reason is.

5. Towards a solution to the epistemological objection

To answer this challenge, let's begin by supposing there are what common sense would regard as exactly two people, Sam and Tom, in a room throughout a certain day. The epistemological objection suggests anti-criterialists will have difficulty explaining why we are justified in believing there are exactly two people there over this time. If anti-criterialism is true, it would seem that any of the following hypotheses could, in principle, actually be true.

H1: Human beings existing at different times are identical iff they are biologically continuous.

H2: All human beings existing at different times are identical.

H3: No human beings existing at different times are identical.

H4: Human beings existing at different times are identical iff they are, at the times in question, made of the same atoms.

H5: Human-identity-over-time is not anchored nomologically to any other conditions – it floats free.

Of course, other hypotheses could also be true. Some will give very complicated, gerrymandered conditions for human-identity. For instance, some might allow

humans to survive in the ordinary way but come back into existence after 'biological death' if certain conditions are met. I leave it to the reader's imagination to conjure up the details.

Very different verdicts on how many people are in the room will result depending on which hypothesis is correct. Anti-criterialists may wish to propose that H1 is correct – it is a contingent law. If it were correct, that would vindicate the common sense judgement that there are exactly two people present. But for reasons already considered, anti-criterialists cannot point to empirical data to show H1 is correct. So why believe it at all?

A promising strategy, I suggest, is for anti-criterialists to look to the *non-empirical* virtues of H1 as compared with its rivals. The non-empirical virtues include *simplicity, elegance, conservatism, explanatory power* and *avoidance of inexplicable coincidences*. If H1 turns out overall to have greater non-empirical virtues than its rivals, that will provide anti-criterialists with good reason to endorse it.

Let's take H5 to begin with – the hypothesis that human-identity actually floats free. This hypothesis has considerable drawbacks. First, it engenders a lot of inexplicable coincidences. Take a given human being, S, in the room at 9 am. If S is identical with somebody in the room at midday, that would be an inexplicable coincidence, for S could just as easily have ceased to exist no matter what continuity relations he bears to later human beings. Likewise, if S ceases to exist by midday, that would be an inexplicable coincidence too, for he could just as easily have been identical with somebody at that time. Second, this hypothesis prevents us from having justified beliefs about exactly how many human beings are in the room that day; there is no way of telling which of a huge range of numbers that *could* be correct on this hypothesis *is* correct. So the hypothesis is inconsistent with common sense, which says we're justified in believing there are two human beings, and also with the scientifically informed view that human beings are biological entities that persist by way of biological continuity. Hence, it offends against conservatism.

The other hypotheses, understood as contingent laws, avoid the problem of countless inexplicable coincidences by anchoring human-identity down one way or another; whether a human persists or not will be no coincidence. Elegance will favour hypotheses such as H1–H4 over heavily gerrymandered alternatives. Among H1–H4, ontological simplicity – the principle that all things being equal we should prefer hypotheses that posit fewer entities – will favour H2 as it implies that there is just one human being in the room which occupies disjoint regions of space simultaneously.¹⁴ H1 will be second favourite as it implies there are exactly two, whereas H3 and H4 both imply there are many more. However, conservatism will weigh in on the side of H1 over the rest. Common sense says there are exactly two humans in the room, and so does the scientifically informed view that human beings are biological entities that persist by way of certain biological processes. H2–H4 contradict these ideas.

One might wonder whether anti-criterialists will benefit from appealing to conservatism. If the scientifically informed view is that we are biological entities that persist through certain biological processes, isn't this just to say that science embraces criterialism? And so doesn't conservatism favour criterialism? I think the answer to both these questions is 'no'. Science certainly tells us that we are biological entities. But, science isn't committed to the claim that biological continuity between humans existing at distinct times is *metaphysically necessary and sufficient for their being identical*. The latter claim is a distinctively philosophical one about which science (and common sense) are, plausibly, non-committal. Thus, conservatism does not obviously favour criterialism.

Inference to the best explanation may also support H1. Suppose that, by common sense reckoning, Sam is avoiding Tom because Tom was grumpy and rude all day yesterday. The best (partial) explanation for this, because the simplest and most elegant, is that Sam is avoiding Tom because Sam remembers Tom being grumpy and rude the day before. This explanation presupposes the identity of (a) a human avoided today with somebody grumpy yesterday and (b) a remembering human today with a human who experienced a grumpy human yesterday. Alternatives are possible. For example, we could affirm that a human, A, is today avoiding another human, B, because A q-remembers a third human, C (distinct from A and B), experiencing a human, D (distinct from all the others), being grumpy and rude yesterday. Granting the former explanation is better, that's a reason to prefer H1 to hypotheses like H3 and H4 which will involve at least four humans rather than two in this scenario. Presumably, explanations compatible with H2, according to which there is only *one* human involved multiply located will be unwieldy too even if ontologically simpler.

More would be needed to demonstrate that consideration of non-empirical virtues will ultimately support H1 over all its rivals.^{15,16} For one thing, it would need to be shown that H1 is preferable to a rival hypothesis anchoring our diachronic identity to psychological continuity. I haven't devoted space to this alternative because so far as vindicating our judgements about ordinary cases is concerned, as with the example of Sam and Tom, either hypothesis will do. For another thing, it would need to be argued that H1 is preferable to mereological nihilism which denies that there are any composite objects at all. There is a lively debate about the merits and demerits of nihilism which there isn't space to contribute to here.¹⁷ Nonetheless, what has been presented so far is a sketch of a novel and, I believe, promising strategy anti-criterialists can pursue to justify belief in contingent laws such as H1 and so to justify our everyday beliefs about diachronic identity. This also provides a way for anti-criterialists to press the *prima facie* case for their theory. That case affirms that we should believe an object's diachronic identity is not metaphysically glued to other conditions unless there is good reason to think otherwise. If justification for our beliefs about persistence does *not* require such metaphysical glue, then we still lack a good reason to think otherwise.

6. An epistemological problem for criterialists

An important point, easily overlooked, is that *criterialists* also have a case to answer when it comes to justifying everyday judgements about diachronic identity. To justify them, criterialists need to show not just that criterialism is true but that specific criteria of identity able to underwrite our common sense judgements are correct. For instance, they need to show that something like H1 understood now as a *necessary truth* is true and hypotheses like H2–H4 which conflict with common sense identity-judgements are false. Obviously, empirical data is no help to criterialists any more than anti-criterialists. We cannot *look and see* that human-identity is metaphysically glued to biological continuity. So how can criterialists respond to their version of this problem?

6.1. Appealing to analyticity

Could criterialists simply claim H1 is analytic; i.e. that having biological identity-conditions is built into the concept *human being*? If that were correct, then given the facts about biological continuity, it follows analytically that there are two humans in the room that day. This might appear to give an easy vindication of criterialism and of H1 in particular.

Not many criterialists think that identity-conditions for natural objects are built into our concepts of such objects (Olson 2012, 51–52). But some do.¹⁸ There are two ways for critics to object. Firstly, they can reject the claim that H1 is analytic. To support the claim that it is analytic, criterialists might point to our dispositions to apply the concept *human being*. When we know humans are biologically continuous, we're disposed to judge that they are identical. When we know they're not biologically continuous, we're disposed to judge that they're distinct. When we're unsure whether they're biologically continuous, we're disposed to be unsure whether they are identical. However, anybody who believes that H1 is a necessary (but not analytic) truth or even just a nomological truth can be expected to have these dispositions. Anti-criterialists may believe H1 is a nomological truth and go on to affirm that at more exotic possible worlds biologically continuous humans may *not* be identical. So the dispositions appealed to don't provide much support for the analyticity claim.

Alternatively, critics can grant defenders of the analyticity claim their understanding of *human being*. They can then question how its defenders know there are any humans *in that sense* at all. The following response might be offered: (i) at each time there is a pair of objects in the room with the kind of synchronic properties humans are thought to have,¹⁹ (ii) those successions of pairs of objects form two sets of mutually biologically continuous objects and (iii) it is analytic that when these conditions are met there are two human beings in their sense of that term. The problem is that, in general, from the claim that it is part of the meaning of 'K' that when certain conditions are met, a K exists, it doesn't follow

that when those conditions are met, a K really does exist.²⁰ Metaphysical arguments are needed to establish that there really are Ks in such circumstances. For instance, we could stipulate that it is part of the meaning of 'tiguin' that one and the same tiguin exists at distinct times, t and t^* , iff for some place, p , a tiger is present at p at t and a penguin is present at p at t^* . It doesn't follow from the analyticity claim together with the fact that the right-hand side of the biconditional is met that a persisting tiguin exists.

It is common ground among criterialists and anti-criterialists here (we may suppose) that in the scenario envisaged there are in the room two sets of biologically continuous objects that individually have the synchronic properties thought to be characteristic of human beings. What is in dispute is whether anything thereby exists belonging to the kind *human being* where it is said to be analytic that humans in that sense are identical iff they are biologically continuous. The agreed upon facts together with the analyticity claim cannot settle this matter.

6.2. Getting metaphysical

At this point, criterialists could turn to metaphysical theses. For instance, four dimensionalists are likely to argue that in addition to H1 being analytic (a) persisting objects are aggregates of temporal parts and (b) mereological universalism is true.²¹ Together with the envisaged facts about the room, all this would imply (setting aside problems of vagueness) that there are exactly two humans present. But while this combination of views endorses criterialism and vindicates the common sense view of the number of people present, it doesn't provide a solution to the problem at hand available to criterialists generally. Claims (a) and (b) are highly controversial metaphysical theses going well beyond criterialism. Many criterialists will want to steer clear of both, and many will want to reject the analyticity claim to boot.

An alternative avenue, which needn't be combined with the analyticity claim, is to draw on the following thesis defended by Shoemaker:

There is an internal relation between the persistence conditions for things of a given kind and the causal profiles of properties characteristic of things of that kind. Properties are individuated in part by the effects their instantiation has on the future career of the things that have them. (p. 134)²²

According to Shoemaker's 'internal relation' claim, as we may call it, the causal profile of the properties thought to be characteristic of human beings will include that instantiations of such properties typically give rise to instantiations of very similar properties *belonging to the same object*, namely one and the same human being.^{23,24} This view suggests the following train of thought. A given human being existing at a particular time will instantiate properties characteristic of humans. If those property instantiations give rise to further instantiations of such properties (as they typically will), then the subsequent

instantiations are bound to be properties belonging to the very same human that the initial properties belonged to. And that seems tantamount to saying that biological continuity between humans – which just is, perhaps, the process through which the relevant property instantiations give rise to similar property instantiations – is metaphysically sufficient for human-identity. That takes us half way to the thesis that H1 (which claims biological continuity is *necessary and sufficient* for human-identity) is a necessary truth.

An obvious problem with this approach, however, is that criterialists cannot simply appeal to the internal relation thesis to show that human-identity is glued to biological continuity. We first need a reason to believe that thesis. Shoemaker may be correct that the causal profile of the properties characteristic of humans imply that instances of such properties will typically give rise to further instances of similar such properties. But *why* should we believe the subsequent instances must belong to *the same human*? Without an answer to that question, we still lack a reason to think biologically continuous humans must be identical.

6.3. *Mimicking the anti-criterialist strategy*

To take a different tack, one might suspect the very considerations we looked at in §5 – non-empirical considerations concerning ontological simplicity, IBE, conservatism, etc. – support not only the truth of H1 but also its *necessary* truth, ironically taking us all the way to criterialism. In fact, this is not the case.

To see why, first suppose one were persuaded that, given one's experiential evidence, IBE supports realism about the physical world. That suggests realism is likely to be true, though it does leave open the possibility that realism could be false despite the evidence. Consequently, the IBE argument makes it reasonable to believe realism is true, since that is likely. But it *does not* make it reasonable to believe that realism is likely to be true *at all the worlds* where one's evidence is similar. Realism may be likely to be true given the evidence at each such world. But it doesn't follow that it is likely to be true at *all* of them.²⁵ Unless we have reason to think realism *could not* turn out to be false given that kind of evidence (and IBE provides no such reason), we are not entitled to infer that realism is likely to be true at all such worlds.

The same applies in the current case. The considerations of §5 suggest it is likely that H1 is true and make it reasonable to believe H1. But unless we have reason to think H1 *could not* turn out to be false despite those considerations (and the arguments of §5 provide no such reason), we are not entitled to infer from those considerations that H1 is necessary.

7. Conclusions

The aim of this paper has been to show that anti-criterialism is well-motivated and that the arguments in the literature which oppose it are not compelling.

An epistemological problem has been identified as the most challenging criticism of anti-criterialism, and a novel line of response has been developed to handle it. It has been argued that criterialism faces an epistemological problem too to which there isn't any easy solution. There is, of course, more to be said on these issues. However, I hope to have shown at this stage of the debate that anti-criterialism is a stronger rival to criterialism than is typically assumed.

Notes

1. The most famous defender of the thesis is Trenton Merricks (see his 1998, 1999, 2001). The restricted view that there are no informative criteria of *personal* identity has been defended by Baker (2012), Chisholm (1989), Lowe (1996) and Swinburne (1984) amongst others.
2. References to their work will be to those papers unless otherwise stated.
3. The version to be defended is inspired by Merricks's work and corresponds quite closely to his position. If the positions coincide entirely (though I'm not certain they do), this paper can be thought of as a defence of Merricks's anti-criterialism.
4. The phrase 'O existing at t' is intended to refer to an object, O, and affirm that it exists at time t; it should not be taken to imply that O exists only at t or to refer to a momentary temporal part of O.
5. A fully general anti-criterialism applies this to *all* objects. But the thesis can be applied less generally to some subset of objects. This paper focuses on mundane objects such as persons and cats. I stay neutral on whether more esoteric objects, such as mereological sums, exist and have criteria of identity. (Merricks (1998, §IV) applies anti-criterialism across the board and denies that mereological sums exist at all).
6. A *no-branching* clause might be added to handle cases of fission and fusion.
7. Example from Zimmerman (1998).
8. See also Merricks (2001, §V).
9. Brueckner (2009) argues that *person P existing at t and being identical with person P* existing at t** can be analysed in terms of *person P existing at t and being psychologically continuous with person P* existing at t** (though not that they are identical). But see Merricks (1999) and Langford (2014) for counter-arguments.
10. Merricks, for instance, allows for this kind of metaphysically sufficient condition: 'it is consistent with the rejection of criterialism that an informative and metaphysically sufficient condition for P at t's being identical with P* at t* is that laws of nature L hold and P at t is related to P* at t* by biological process B' (2001, §VII).
11. See pp. 124–126. Shoemaker talks about the 'simple view' rather than 'anti-criterialism' but characterises this as the view that there are no constitutive criteria of identity over time (p. 123). Whether the 'simple view' *should* be so characterised is discussed in Olson (2012).
12. Olson (2012, fn. 4) suggests Merricks would accept such global supervenience. But, in fact, and in keeping with his anti-criterialism, Merricks explicitly rejects it in his 2001, §6.
13. One might argue that (AC) is implicitly self-contradictory on the grounds that it is analytic that, say, biologically continuous human beings are identical. See §6.1 below for discussion.

14. Likewise, I am identical with Socrates and with Napoleon too on this hypothesis, and so are you.
15. In the light of problem of fission, anti-criterialists might shy away from H1. In a fission case, a single human might be biologically continuous with two later humans. Together with H1, that would suggest the original human ends up in two places at once, or perhaps that there were two coinciding humans before fission. Anti-criterialists may want to restrict H1 to avoid these implications. They may favour a contingent law whereby biological continuity is sufficient for human-identity *in the absence of branching*. This would involve a more complicated law governing human-identity than H1. Elegance will count against that. But conservatism may favour it because it avoids the weird consequences H1 incurs. I won't pursue this complication further here.
16. Merricks (2001) believes God could resurrect human beings after their biological death, in which case biological continuity isn't necessary for our identity at the actual world. But this needn't be a reason for him to reject H1. H1 could be regarded as a natural law (for the reasons given above), albeit one which God can violate.
17. e.g. Bennett (2009) and Sider (2013).
18. Shoemaker has suggested this view in correspondence, and four dimensionalists typically take this view (Sider 2001).
19. The objects also have the appropriate evolutionary history, etc.
20. See also Merricks (1998, 115–116).
21. See Sider (2001) for this kind of approach.
22. In correspondence, Shoemaker has claimed that this thesis is necessary and a priori, but he disavowed the view that it is analytic.
23. What does it mean to say that an instantiation of a property typically gives rise to instantiations of similar properties in the same object? As I interpret it, the idea is that if something has such a property, its having that property will typically cause it to continue to have similar properties. I think the idea is neutral between rival theories of properties – such as realism, trope theory, etc.
24. See Olson (2002) for detailed criticism of Shoemaker's thesis from a rival *criterialist*.
25. Consider: each time I throw a die, it is likely I won't get a six. But it isn't likely that if I throw many times, I won't get a six on any of them. With just six throws the likelihood of no six reduces to about one third.

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