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EXTENDED ENTITLEMENT

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ABSTRACT. The hypothesis of extended cognition, according to which cognitive processes are not bound by skin and skull but can extend into the world, is gaining traction in the philosophy of mind; but it remains to be seen whether mainstream epistemology can make room for ‘extended’ cognitive processes. One constraining issue is that from an epistemological point of view epistemic evaluations should be symmetrical across pairs of cases where relevant epistemic and psychological factors are held fixed and all that is varied is whether the process is extended. We show, however, that in the classic ‘extended memory’ case used to motivate extended cognition, such epistemic symmetry will be *prima facie* troublesome to square with the observation that biological memory is a paradigmatically *basic* epistemic source, whereas extended memory appears to be a *non-basic* epistemic source. We argue that with a proper conception of cognitive integration in hand this problem can be resolved. In particular, we claim that extended memory cases, properly understood, involve a kind of ‘extended entitlement’, where the entitlement in question is of the same kind as that enjoyed by our non-extended memorial beliefs.

1. EXTENDED COGNITION, EPISTEMOLOGY AND PARITY

According to the *hypothesis of extended cognition* (HEC), there is no principled reason to preclude the possibility that one’s cognitive processes can extend beyond one’s skin and skull to include items in the world, such as instruments or even other cognitive agents.¹ This thesis should be distinguished from the related, but more contentious, *extended mind thesis* according to which mental states themselves, such as beliefs, can be similarly extended into the world.² Nonetheless, (HEC)

represents a striking departure from ordinary received thinking about the ‘bounds of cognition’. Even so, HEC has drawn a number of enthusiastic takers in contemporary philosophy of mind and cognitive science.³

While there are several ways to motivate HEC, a simple way to do so is *via* common-sense functionalism.⁴ This is at any rate the key idea driving Andy Clark and David Chalmers’s (1998) much-referenced *parity principle*, a principle that tells us under what conditions something should be accepted as part of a cognitive process:

Parity Principle. If, as we confront some task, a part of the world functions as a process which, were it to go on in the head, we would have no hesitation in accepting as part of the cognitive process, then that part of the world is part of the cognitive process. (Clark & Chalmers 1998, 8)

The parity principle is aimed at safeguarding against ‘bioprejudice’—*viz.*, when it is just on account of the fact that something is external to the skin and skull that it is excluded as part of a cognitive process.

To get a feel for the parity principle in action, it is helpful to consider here Clark & Chalmers’s hallmark case featuring ‘Otto’:

Otto. Otto suffers from Alzheimer’s disease, and like many Alzheimer patients, he relies on information in the environment to help structure his life. Otto carries a notebook around with him everywhere he goes. When he learns new information, he writes it down. When he needs some old information, he looks it up. For Otto, his notebook plays the role usually played by a biological memory.

Otto is clearly using his notebook in a way that it is on a ‘functional par’ with the way ordinary agents rely on a working biological memory, *vis-à-vis* storage and retrieval. By reference to the parity principle, then, Clark & Chalmers insist that if an ordinary agent (‘Inga’) relies on her biological memory and we count her biological memory as an element of the cognitive process she employs, then so must we count Otto’s notebook as part of the cognitive process that he employs. In this respect, we should view Otto’s cognitive process as a kind of ‘extended memory.’⁵

HEC is first and foremost a thesis about the metaphysics of cognition and, as such, not an epistemological thesis. But given that cognitive processes play indispensable roles in epistemological theory (which traffics in epistemic evaluations and appraisals), it is natural to consider the ramifications HEC would have if taken on board in mainstream epistemology. It would after all be a strike against HEC if the thesis could not be squared with ordinary insights in the theory of knowledge.

One natural insight which is relevant here is that taking extended cognition seriously in epistemology involves a willingness to make symmetrical epistemic evaluations across pairs of cases that materially differ only insofar as one case in the pair is an extended analogue of the other. For example, insofar as we count Inga (relying on her biological memory) as knowing that MoMA is on 53rd street, then we should also be willing to treat Otto, who differs only in that he relies on an extended memory process, as knowing this proposition also. We can capture this idea as the *epistemic parity principle*:

Epistemic Parity Principle: For any agent S and true proposition p , if S comes to believe that p by a process which, were it to go on in the head, we would have no hesitation in ascribing knowledge that p to S , then S knows that p .⁶

It might not be initially obvious that there would be any in principle difficulty posed for mainstream epistemology by respecting the epistemic parity principle. After all, why think there's any in principle barrier (for an epistemological theory) to issuing exactly the kinds of symmetrical epistemic evaluations across cases that epistemic parity demands? In particular, don't we have the intuition that *both* Otto and Inga know that MoMA is on 53rd street?

But it turns out that there is trouble lurking. For notice that in order for the epistemic parity principle as just formulated to hold it is not enough merely for Otto and Inga both to have knowledge. Instead, it must also be the case that Otto's and Inga's beliefs have sufficiently similar epistemic properties to ensure that their knowledge co-varies across a suitable range of adapted cases. For example, notice that Otto and Inga's beliefs can be epistemically alike in terms of both being cases of knowledge while *also* being importantly epistemically distinct in that one is susceptible to defeaters that the other isn't. It would follow in such a case that although Otto and Inga in fact both have knowledge, there will nonetheless be possible cases, involving the relevant defeaters, where one of the pairing has knowledge while the other lacks it. This would of course be in conflict with the epistemic parity principle.

Why might one hold that Otto and Inga's beliefs have different epistemic properties? One reason—recently proposed by Åsa Wikforss (2014)—might be that there is a psychological difference regarding how the beliefs are formed. According to Wikforss, whereas Inga simply recalls a memory, Otto instead undertakes a more complex psychological process which involves a series of steps including a desire to consult a notebook, the intentional action of consulting a notebook, and the locating of the right entry using reason and perception.⁷

We think that this is a tendentious way of describing the two cases, and may in any case be epistemically irrelevant. On the first point, notice that part of the claim made by proponents of HEC is that in cases of extended cognition the only material difference between the subject and the counterpart who employs the corresponding non-extended cognitive process is that the extended cognitive process is taking place outside of the subject's skin and skull. So whereas we can of course imagine variants of the Otto case where Otto is indeed undertaking relatively complex psychological processes in this manner, it is not this variation of the Otto case that we are interested in. Rather, our concern should be with a rendering of the Otto case where Otto's belief formation is psychologically on a par with Inga's memorial belief formation. In particular, we are to imagine that Otto has the same kind of psychological immediacy when consulting the notebook in order to find the relevant information that Inga displays when she consults her memory. (Note that we will be returning to this point in §3).

In any case, the second point—regarding the epistemic relevance of the putative psychological differences between Otto and Inga—is more important. The crux of the matter here is that even if there are such psychological differences their epistemic implications could well be moot. For what ultimately counts when it comes to the epistemic standing of a belief is what the epistemic credentials of that belief are and not the psychological processes involved in acquiring that belief. For example, a perceptual belief might enjoy an excellent epistemic pedigree in virtue of the fact that it is the product of a highly reliable cognitive process. That a complex psychological process was undertaken as part of the formation of the belief need have no bearing on its epistemic status. Conversely, we can imagine a perceptual belief which is accompanied by a very simple psychological process but which is nonetheless lacking in epistemic standing because the perceptual faculties in play were highly unreliable.⁸ The moral is that what counts in the Otto and Inga cases from an epistemological perspective is not so much the psychological processes in play, but rather the epistemic credentials of the epistemic basis for the belief so formed. More precisely, we should be wary about drawing any quick conclusions from the nature of the former to the nature of the latter.

Henceforth, for the sake of argument we will grant to the proponent of HEC that there are no significant psychological differences in play when it comes to Otto and Inga's belief. In particular, we will take for granted that the phenomenology of belief-formation is essentially the same in both cases. Even if we grant this point, however, there is still reason to reject the epistemic parity principle, at least as it currently stands.

In order to see this, we just need to note that the cognitive process involved in the formation of Otto's belief is undeniably different from that in play with regard to Inga's belief, in that while the former involves factors outside of Otto's skin and skull, Inga's belief relies only on her biological memory. In short, even if we grant that these two subjects are on a psychological par, and even if we grant that they are both employing cognitive processes that are *bona fide* routes to memorial knowledge, it is still the case that they are *distinct* routes to memorial knowledge. While this point can at first sound epistemically inert, it raises some problems for the epistemic parity principle as it is currently formulated.

The problem is that the epistemic source of one's knowledge can have a bearing on which defeaters are relevant to the epistemic standing of one's belief. Consider two agents who each form the perceptual belief that there is a sheep in front of them, and on this basis acquire perceptual knowledge of this proposition. Let us stipulate that these beliefs are psychologically on a par, in that they are both formed spontaneously in response to roughly the same visual stimuli and have a similar phenomenology. Imagine, however, that whereas the first agent views the sheep in natural light, the second agent instead views the sheep in artificial light.

This difference becomes epistemically important once we consider *undercutting defeaters*—i.e., defeaters which undermine the epistemic pedigree of the belief.⁹ For notice that what constitutes an undercutting defeater for the one agent's belief need not constitute an undercutting defeater for the other agent's belief. For example, being told that the artificial light in play is deceptive can be a misleading undercutting defeater for the second agent's belief, but will have no bearing at all on the first agent's belief since artificial light is not involved in the perception.

What goes for the two agents in this case will also apply to Otto and Inga's beliefs. Otto's knowledge can be defeated by a misleading undercutting defeater to the effect that the notebook has been tampered with, but this won't affect Inga's knowledge. In contrast, Inga's knowledge can be defeated by a misleading undercutting defeater to the effect that her (biological) memory is unreliable about this subject matter, but that won't affect Otto's knowledge.¹⁰ The upshot is that there will be cases where Otto and Inga don't both have knowledge (but where one of them does), contrary to the epistemic parity principle.

That this issue can just as much affect two perceptual beliefs which differ only in whether natural light or artificial light is in play should give us pause for thought here, however, since if two perceptual beliefs of this kind can fail to satisfy the epistemic parity principle, then why would we expect a pairing of non-extended and extended cognition to satisfy this principle? This suggests that

what we are interested in when it comes to epistemic parity is not the principle as formulated above, but rather a weaker principle which abstracts away from the question of defeaters. Consider this principle:

*Epistemic Parity Principle**: For any agent S and true proposition p , if S comes to believe that p by a process which, were it to go on in the head, we would have no hesitation in ascribing defeasible warrant to S 's belief that p , then S has defeasible warrant for her belief that p .

By 'defeasible warrant' here we mean an epistemic standing which suffices for knowledge absent any (undefeated) defeaters.¹¹ This reformulation of the epistemic parity principle will evade the problem just mooted in that it is compatible with this principle that Otto's knowledge and Inga's knowledge are not epistemically alike with respect to their sensitivity to defeaters. Nonetheless, this principle captures the idea that there is a commonality of epistemic status to Otto and Inga's beliefs, even though Otto's belief is formed via an extended cognitive process.

Plausibly, Otto and Inga's beliefs will both satisfy the epistemic parity principle*. We have already stipulated that Otto's belief-forming process is psychologically on a par with Inga's. Moreover, in order for the epistemic parity principle* to apply to the pairing of Inga and Otto it must also be the case that Otto's belief-forming process is also epistemically on a par, which means, for example, that it must be just as reliable. Putting these points together, and bearing in mind that defeaters are no longer relevant to our epistemic assessment in this regard, there seems no barrier to treating Otto and Inga as both enjoying defeasible warrant for their beliefs. Thus, if HEC merely has the epistemological ramification that the epistemic parity principle* holds, then there is no in principle problem involved in epistemology embracing HEC.

2. BASIC EPISTEMIC SOURCES

That HEC can be made to square with our epistemological judgements in this way should surprise us. After all, insofar as contemporary epistemologists state a view in this regard (which is rarely), it is usually to endorse the position that cognitive processes take place entirely within the skin and skull of the agent.¹² Would epistemologists who take this line really be so willing to endorse the epistemic parity principle* and its application to the Otto and Inga cases?

Interestingly, they might well do just that. In order to see why, we need to note a crucial ambiguity in the epistemic parity principle* as it is currently formulated. This is that as it is presently

characterised it only demands a parity of *positive epistemic status* should be respected across cases like that of Otto and Inga. But one can accept this much while nonetheless arguing that the positive epistemic status that accrues to the agents' respective beliefs is completely different in character, such that Inga's belief enjoys an epistemic pedigree that is not applicable to Otto's belief.

The reason why this is relevant for our purposes is that memory is standardly thought to be a canonical example of a basic epistemic source, where this means an innate belief-forming process which is epistemically privileged in the sense that it can be the source of *non-inferential* knowledge. More precisely, memory can be the source of non-inferential defeasible warrants which can in turn, absent defeaters, suffice for non-inferential knowledge. In this respect memory is held to be akin to perception and introspection and distinct from non-basic epistemic sources, such as testimony.¹³

When epistemologists describe memory as a canonical basic epistemic source, however, they clearly have biological memory in mind. We might reasonably ask then whether extended non-biological memory is also a basic epistemic source. If it isn't, then even though Otto and Inga's beliefs are on an epistemic par sufficient to satisfy the epistemic parity principle*, there will still be a fundamental difference in their epistemic properties. In particular, Inga's belief will have a privileged epistemic status that Otto's belief lacks.

One might wonder at this juncture whether the proponent of HEC should care whether there are epistemic differences of this level of fine grain between Otto and Inga's beliefs. So long as they are epistemically on a par to satisfy the epistemic parity principle*, then why should this further level of difference matter?

The reason why it matters is that if HEC is consistent with Inga's belief having a superior epistemic standing relative to Otto's belief in virtue of how it is formed, then it follows that extended cognitive processes are *not* on an epistemic par with their non-extended counterparts. So, for example, extended memory is not epistemically on a par with biological memory, extended perception is not epistemically on a par with biological perception, and so on. HEC when applied to epistemology thus ends up being a much less striking thesis. Moreover, once we concede that such extended cognitive processes are epistemically deficient relative to their non-extended counterparts, then one might start to naturally wonder whether they should be regarded as the same kind of cognitive processes at all. For example, if extended memory doesn't share its essential epistemic properties with biological memory, then why is extended memory a genuine kind of memory, rather than simply being a non-memorial epistemic process?

Our goal in the remainder of the paper is to argue that the proponent of HEC can resist this conclusion and continue to endorse the more striking claim that extended cognitive processes are fundamentally on an epistemic par with their non-extended counterparts. As we will argue, what is key here is to recognise that insofar as we understand Otto's belief-forming process properly so that it is a plausible case of extended memory, then it likewise becomes credible that Otto's belief enjoys exactly the same kind of basic epistemic standing that applies to Inga's belief.

3. COGNITIVE INTEGRATION

We noted in §1 that it is crucial to our evaluation of the Otto and Inga cases that we treat them as being psychologically on a par. For this to be the case, however, we need construe Otto's situation in a very specific way.

To begin with, note that Otto is very different from an individual who (say) consults a phone book on occasion.¹⁴ Rather, the claim is that Otto satisfies a number of 'glue and trust' conditions which someone who merely uses a phone book from time to time will not satisfy. Following Clark (2008), we can formulate these conditions as follows:

- (i) *Availability*: The information in the notebook must be reliably available and regularly consulted.
- (ii) *Accessibility*: The information in the notebook must be easy to access.
- (iii) *Automatic Endorsement*: The information retrieved from the notebook should be automatically endorsed and should not normally be subject to critical scrutiny.
- (iv) *Past Endorsement*: The information in the notebook must have been previously endorsed by Otto and be there as a consequence of this endorsement.

Note that all of these conditions generally apply to normal biological memory, at least insofar as one's biological memory can generate the basic defeasible warrant which is our present concern. In line with (i), one's memory is reliably available and one regularly consults it—indeed, it is a matter of habit, in the sense that one's decision to consult it can be spontaneous. In line with (ii), one's memory is usually easy to access, at least when it is functioning in a way that is conducive to furnishing one's memorial beliefs with basic defeasible warrant. In line with (iii), one does not normally subject the deliverances of one's memory to critical scrutiny. Finally, in line with (iv), one's memories are characterised by their relationship to one's past experiences.

Of course, biological memory doesn't always function in these ways, even when it is a source of basic defeasible warrant. Memories can be hard to 'locate' sometimes, for example. But in order to keep matters simple, let's focus on a particular way in which Inga uses her memory, such that it does satisfy these four conditions. In particular, we are interested in cases where Inga immediately consults her memory when called upon to do so, and can easily identify thereby the information she requires, information which is automatically endorsed by Inga and which was previously endorsed by Inga at some point in the past (leading it to form part of Inga's memories).

In order for Inga's use of her memory, so understood, to lead to defeasibly warranted memorial beliefs, we will also need to impose some epistemic conditions on this belief-forming process. Interestingly, however, it seems that such conditions can be quite minimal, at least to the degree that they require very little by way of reflective reasoning on Inga's part. In particular, what seems most important is that this belief-forming process be in fact reliable. That is, in the right environment—e.g., where there are no defeaters present—the exercise of a reliable memorial belief-forming process, where the belief so formed is true, can lead to knowledge.¹⁵ In such cases, the agent's cognitive success would be creditable to her cognitive agency (i.e., her exercise of relevant cognitive ability, in this case memory) as opposed to non-agential factors (such as purely environmental considerations), and would result in a true belief which could not have easily been false (i.e., which is safe). That makes it a prime candidate for knowledge.¹⁶ Moreover, the knowledge in question is epistemically basic, in that it simply involves the exercise of a basic epistemic source.

When defeaters enter the scene, then the epistemic situation changes, since it is now incumbent upon the agent to defeat the defeaters, and that requires a reflective rational process be undertaken by the agent, in contrast to the simple formation of memorial belief which may involve no reflection at all. This highlights the point that the basic warrant furnished by the reliably functioning memory is only defeasible.¹⁷ For now, let us set defeaters to one side and focus only on cases where no defeaters are present.

Note that when we attributed basic knowledge to Inga above, we did so because the cognitive success in question was creditable to her cognitive agency. That is, we have a cognitive success that is explained by the subject's exercise of relevant cognitive ability, and not by other non-agential factors (such as purely environmental factors). What does it take for a subject's belief-forming trait to count as a cognitive ability? Reliability is surely very important in this regard, as noted above, but clearly not sufficient, since all manner of belief-forming processes could be reliable without thereby counting as cognitive abilities. For example, a *cognitive malfunction* can nonetheless be

reliable, as Alvin Plantinga's (1993) famous example of the brain lesion which reliably causes the subject to believe that she has a brain lesion demonstrates. Cognitive malfunctions are not cognitive abilities, no matter how reliable they might be, which is why they not routes to knowledge in the way that cognitive abilities can be.

The additional ingredient that is required is that the belief-forming process should be an *integrated* part of one's overall cognitive character. That's just what's lacking in the cognitive malfunction case, for example, in that while there is a belief-forming process on display which is reliable, it is not a process which is integrated with the rest of the subject's cognitive character. Indeed, it is *in despite of* the subject's cognitive character that this belief-forming process is reliable, in that her cognitive success is not creditable to her cognitive agency but rather to the happenstance that the cognitive malfunction in play turns out to be reliable.

In contrast, had the process been integrated within the agent's cognitive character then it could potentially have led to knowledge. If, for example, the subject in the brain lesion case becomes aware that there are brain lesions of this kind and that she likely has one, then arguably she could come to know via this means that she had a brain lesion. This would be a case where a reliable belief-forming process which is not integrated within a subject's cognitive character becomes integrated via a rational process. Insofar as the subject succeeds in this regard, then her cognitive success would be creditable to her cognitive agency. In cognitive integrating the cognitive process into her cognitive character, the subject thus effectively transforms it from a cognitive malfunction into a cognitive ability.¹⁸

One's innate cognitive faculties—such as memory—are in a privileged position in this regard, in that they effectively define what is to constitute a minimal (i.e., knowledge-conducive) level of cognitive integration. Even prior to a subject being able to undertake reflective rational processes of any level of sophistication, she can nonetheless gain knowledge via her cognitive faculties, where this involves cognitive success which is creditable to her cognitive agency. That this is possible demonstrates that cognitive integration, while it may involve a reflective rational process as in the brain lesion case, need not require any substantive level of reflective rationality (much less the formation of a 'perspective' on one's cognition in terms of a network of meta-beliefs). Rather, cognitive integration in this regard just requires that one's innate cognitive processes be appropriately entwined with one another. For example, a subject whose memorial beliefs were not appropriately sensitive to her perceptual beliefs—for instance, where her recent memories about her environment are regularly completely at odds with her current perception in this regard, but both are

automatically endorsed nonetheless—would not count as having properly functioning innate faculties. When we imagine Inga to have properly functioning memory, and thus being in the market for basic memorial knowledge, we are thus treating her as having innate cognitive faculties which are cognitively integrated at least to this minimal extent.

With all this in mind, let us return to the case of Otto. In imagining Otto as being on a psychological par with Inga we are supposing that Otto meets the ‘glue and trust’ conditions laid down above. Merely looking at a phonebook—or, indeed, one’s notebook—from time to time would not suffice in this regard. But notice now what would be required for Otto to count as meeting these conditions.

The fourth condition is trivially met in virtue of it being his own notebook, but it is the other three conditions which are interesting for our purposes. For in order to satisfy these conditions, we need to suppose that the notebook is a constant feature of Otto’s life, and habitually consulted, so that the information that it provides becomes automatically endorsed. Imagine, for example, that the notebook is attached to Otto’s body in order to ensure it’s easy access so that Otto can consult it immediately, and that it has been attached in this way for a significant period. Indeed, notice that these three conditions effectively entail that Otto’s has been using the notebook in this direct fashion for some time.

This is important because it has a bearing on the extent to which the notebook has become cognitively integrated into Otto’s cognitive character. Unlike the mere occasional checking of a phone book, which isn’t psychologically on a par with Inga’s use of memory, Otto has reached a stage where consulting the notebook has become every bit as automatic as consulting one’s biological memory. For Otto to reach such a stage the notebook will have become integrated with his other belief-forming processes in the same way as his innate cognitive faculties like memory and perception are cognitively integrated. In particular, the information in the notebook will have accorded with the deliverances of Otto’s other existing cognitive abilities for a sustained period before it is treated as an automatic information-resource in this fashion.

Now of course we can imagine a version of the Otto case where no such process of cognitive integration takes place, and where Otto immediately begins trusting the information in the notebook in the same way as Inga trusts her memory. But notice that we are now no longer keeping the relevant epistemic features of the two cases fixed. The epistemic parity principle* stipulates that the only difference between the cognitive processes employed by Inga and Otto is that only the former takes place within the subject’s skin and skull. But that means that insofar as we treat Inga as

being in a position to acquire defeasible warrant from employing her memory, such that her memorial cognitive process is reliably and cognitively integrated, then we need to likewise suppose that Otto's cognitive process is reliable and cognitively integrated too. (Note that, in line with the discussion in §1, we are setting aside all defeaters here).

With the Otto case so understood, however, then this reinforces the point made above that Otto's beliefs ought to be credited with the same kind of positive epistemic standing that we would attribute to Inga's memorial beliefs. In particular, by consulting the notebook Otto can acquire direct knowledge, where this means that his cognitive success in this regard is creditable to his cognitive agency and not to other non-agential factors (such as purely environmental factors).

This still leaves the issue that we noted earlier, however, which is whether Inga's belief enjoys a special kind of epistemic standing in virtue of being formed via an innate cognitive faculty that Otto's belief lacks. Our claim, however, is that once we properly understand how the two cases are on an epistemic par, then we can also deal with this issue. For the special kind of epistemic standing that accrues to Inga's belief is a form of *entitlement*, and we suggest that with Otto's belief-forming process understood along the lines just proposed his beliefs are also in the market for entitlement, albeit entitlement which accrues from an extended cognitive process rather than from an innate one.

4. EXTENDED ENTITLEMENT

'Entitlement'—it should be noted up front—is a term of art in epistemology with its own distinctive characterisation in the hands of (among others) Fred Dretske (2000), Christopher Peacocke (2004), and Crispin Wright (2004). The nuanced notion of epistemic entitlement that we shall be interested in here has been developed in a series of influential works by Tyler Burge (1993; 1996; 2003).

On a first approximation, as Burge sees it, our perceptual beliefs (and other basic beliefs) enjoy the status of 'entitlement', wherein (in the absence of positive reasons to the contrary) one has the right to take the state 'as it represents the world as being.'¹⁹ This positive epistemic status is understood as a kind of *externalist warrant* distinct from the kind of 'internalist' justification enjoyed by (for instance) inferentially acquired knowledge. In particular, Burge (1996) argues that we are entitled to accept the deliverances of memory, and our focus will specifically be on this claim.

In order to engage with Burge's account of memorial entitlements, however, it's important to first come to grips with the particular way that Burge is thinking about memory and its epistemic significance. In particular, we need to Burge note that rejects *generativism* about the epistemology of memory, as defended by such figures as Robert Audi (1995) and John Pollock (1974; 1986). According to generativism, there is a close analogy between memory and perception such that, just as the phenomenology involved in perception generates positive epistemic status for one's perceptual beliefs, so the phenomenology of recalling generates positive epistemic status for one's memorial beliefs. Generativist-based arguments to the effect that we have memorial entitlements would thus parallel closely the kind of arguments we'd expect to find for perceptual entitlements.

One problematic implication of generativism in the epistemology of perception is that the more we observe a phenomenon the greater the epistemic support our perceptual belief in this regard enjoys. Such an implication is even more problematic when applied to generativism in the epistemology of memory. Would we really want to say that, *ceteris paribus*, a memorial belief that is regularly retrieved enjoys thereby a better epistemic status than one that is retrieved infrequently?²⁰

In opposition to the generativist view, Burge (1996) accepts the more standard line in the epistemology of memory, which is *preservativism*. Preservativism draws a closer parallel between memory and testimony than between memory and perception. Here is Sven Bernecker's characterisation of preservativism:

Just as testimony is said to transmit knowledge from one person to another, memory is said to *preserve* knowledge from one time to another. (Bernecker 2011, 11)

In terms of our terminology, preservativism is the idea that memory can preserve defeasible warrant from one time to another.²¹ Since the epistemic standing is derived from the original memory, and not generated as part of the recall of the memory, such a view avoids the problematic implication that we just noted afflicts generativism in the epistemology of memory.

A further advantage of preservativism is that it is better able than generativism to make sense of how it is that our memorial beliefs can have a kind of positive epistemic status even though (very often) we've simply *forgotten* our original warrants. As Burge remarks here:

I believe that a person clearly can be entitled to believe a theorem she believes because of preservative memory even if she cannot remember the proof she gave long ago, and even if she cannot remember that she gave a proof. Most of what one is entitled to believe from past reading, past interlocution, past reasoning, or past empirical learning, derives from sources and warrants that one has forgotten. (Burge 1996, 38)

According to preservativism, the epistemic entitlement that accrues to a memorial belief is in virtue of the epistemic standing of the original belief, and this explains why an agent can have entitlement for a memorial belief even when she is unable to recollect the source of this memory. In contrast, on the generativist picture a defeasible positive epistemic status is generated for the memorial belief simply in virtue of it being a memorial belief, regardless of its original epistemic pedigree.

It's safe to assume Burge has *biological* memory in mind as undergirding the picture of memorial entitlement he is offering. However, there's nothing to prevent us from allowing that the status of (Burgean) entitlement that Inga's memorial beliefs enjoy won't also be enjoyed by Otto. To see how this is so, let's get clearer about why, according to Burge, Inga's memorial beliefs enjoy the status of memorial entitlement.

For one thing, Inga's (innate) memorial process satisfies a functional requirement that Burge lays down, which is that biological memory, in the default case, has a *characteristically veridical and reliable function*, as established through a history of causal interactions with the environment in which Inga relies on her memory. Moreover, Inga's biological memory has this veridical and reliable function in part because: (i) Inga's biological memory represents and stores veridical content (and has a history of doing so via causal interactions with her environment); and (ii) the content Inga represents and stores is sufficiently causally related to the content that she later represents at the time of recall.²² It is in virtue of meeting these Burgean conditions that Inga's memorial belief enjoys the status of entitlement (i.e., she can take it for granted, absent any positive reason not to).

Crucially, however, Otto's extended memorial beliefs will satisfy the very same Burgean conditions. In order to see this, we first need to draw attention to how an obvious *prima facie* difference between Otto and Inga turns out to be entirely irrelevant to whether Otto's extended memorial beliefs enjoy entitlement. This obvious difference is that Otto will (perhaps, invariably) forget the original warrant for each belief that is transferred into his extended memorial storage, whereas this eventuality will be rarer for Inga, who often enough will recall both the stored proposition as well as her original basis. After all, the information that Otto will be entering into the notebook will usually just be the target proposition, and not also the epistemic basis that he has for believing this proposition at the time of the entry.

As we've seen, however, the details of Burge's line make clear that Otto's failure to recall his original grounds will be neither here nor there as regards the issue of whether Otto's extended memorial beliefs enjoy Burge-style entitlement. What matters is that the original warrant is preserved through a characteristically veridical and reliable process, via a process of continual causal

interactions with the environment. Now we've just considered how Inga's reliance on her biological brain constitutes such a process. Consider now Otto's extended memorial process, once his use of the notebook has been cognitively integrated into his cognitive character in line with our discussion in §3. Once cognitively integrated in this way, Otto's extended cognitive process will exhibit a characteristically veridical and reliable function because: (i) like Inga's biological memory, it has a causal-environmental history of representing and storing veridical content, and (ii) again just like Inga's biological memory, the content that Otto represents and stores is sufficiently causally related to the content that he later represents at the time of recall.²³

It follows that there is nothing in Burge's view about memorial entitlement which wouldn't apply just as well to Otto's extended memorial belief as it would to Inga's non-extended memorial belief. What matters is whether Otto's belief meets the conditions that Burge lays down for memorial entitlement, and so long as Otto's extended memorial belief-forming process is cognitively integrated within his cognitive character then he will satisfy these conditions just as much as Inga does. In particular, we have seen that in order to for the Otto case to be relevantly analogous to the Inga case, such that the former differs from the latter only in as much as that an extended memorial cognitive process is involved, then we need to suppose that Otto's extended memorial belief-forming process is cognitive integrated within his cognitive character. But, so construed, Otto's extended memorial belief enjoys a defeasible warrant which is not merely on an epistemic par to that enjoyed by Inga's non-extended memorial belief, but is of the same kind: Burgean entitlement.²⁴

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NOTES

¹ Following Menary (2012, 152), it can be helpful to think of the term ‘extension’ in terms of distribution. As Menary takes it, extended cognition ‘mean[s] distribution, cognition is distributed across brain, body and world.’ For some other representative statements of the hypothesis of extended cognition, see Aizawa (2012, 92-93), Rowlands (1999, 22), Clark (2009), and Rupert (2004, 393).

² For some key defences of the extended mind thesis, see Clark & Chalmers (1998), Clark (2009), Menary (2007), Rowlands (1999), and Wilson (2004). For two notable lines of criticism, see Adams & Aizawa (2001; 2008) and Rupert (2004).

³ See Clark & Chalmers (1998) and Clark (2007). For defences of HEC from an epistemological perspective, see Pritchard (2010) and Palermos (2013). For dissenting treatments of HEC, see Rupert (2004) and Adams & Aizawa (2008).

⁴ Another way to motivated HEC is by appeal to dynamic systems theory. See Chemero (2009), Froese, Gershenson & Rosenblueth (2013), and Palermos (2014).

⁵ This is an example of a variety of extended cognition called *artefact extension*, where HEC is implied by external objects featuring in the cognitive processes of agents. See Menary (2012) for a different version of HEC—*encultured cognition*—according to which cognition is realized by mind, body and world not because the objects themselves are part of the cognitive process, but because some encultured transcranial processes are cognitive processes.

⁶ See here Carter (2013) and Carter, Kallestrup, Palermos & Pritchard (2014).

⁷ See Clark (2010, 7-8) for an attempt to turn the tables on the suggestion that Otto’s psychological process is more complex than Inga’s, in that it involves (at least) two steps rather than just the one step. Clark argues that an equally uncharitable characterization of Inga’s psychology would have her taking (at least) two steps as well.

⁸ See Lyons (2009) for a discussion of how, for example, a perceptual process can be psychologically inferential even if epistemically non-inferential (i.e., such that the epistemic standing of the beliefs so formed is largely independent of the psychological processes taking place).

⁹ Undercutting defeaters are usually contrasted with *overriding defeaters*, which are independent reasons against the truth of the target proposition. For more on this distinction, see Pollock (1986).

¹⁰ It is after all already part of the details of the original case that Otto after recognizes that his biological memory is unreliable; hearing this will not effect his epistemic position. Interestingly, another kind of undercutting defeater which is particularly relevant to the Inga case concerns alcohol consumption. As Atkinson & Shiffrin (1968) note, the primary effect of alcohol consumption on biological human memory is that of impairing the transfer of information from short-term to long-term storage. Thus if Inga were to be convinced that she has (unbeknownst to her) regularly imbibed high levels of alcohol, this could undermine the epistemic standing of her memorial beliefs. But of course this sort of undercutting defeater will not in principle affect Otto’s extended memorial beliefs, as he is not relying on his biological memory. For more on this point, see Carter & Kallestrup (2014).

¹¹ Note that we can ignore Gettier-style epistemic luck in this regard, since we are keeping fixed the features of the subject’s environment (including her modal environment) and only switching between an extended and a non-extended version of the relevant cognitive process. Thus, the subject will either be subject to Gettier-style epistemic luck in both cases or in neither.

¹² See, for example, Goldman (1979, 13; 1986, 51) and Sosa (2007, 29). Elsewhere, one of the authors of this paper has characterized this view as *epistemic individualism*—see Kallestrup & Pritchard (2012; cf. Kallestrup & Pritchard 2011; 2013).

¹³ For more on basic epistemic sources, see Audi (2010). Note that there is some controversy over what counts as a basic epistemic source, and in particular whether testimony can qualify in this regard—Lackey (2008), for example, famously argues that testimony is as basic an epistemic source as perception or memory—though we will not be engaging with these issues here. As we will see in §4, the key issue for our purposes is not whether memory is epistemically on a par with, say, testimony, but rather whether Otto’s extended memorial belief enjoys the very same kind of epistemic standing as Inga’s non-extended memorial belief.

¹⁴ If it *were*, then it would count against the plausibility of HEC that Otto’s case be ruled-in as a *bona fide* case of extended cognition. See Rupert (2004, 401-05). This point is part and parcel with the ‘cognitive bloat’ worry: if too much of the external world is ruled-in as part of the cognitive process, then HEC is implausibly liberal in a way that would not preserve a meaningful difference between agent and environment. See Palermos (2013) for a reply to Rupert on this point.

¹⁵ Note that a further way (i.e., aside from defeaters) in which a reliable memorial belief-forming process can fail to lead to memorial knowledge is when there is *environmental epistemic luck* in play. Such luck can be present even where there are no defeaters and even where the actual environment is conducive for the reliable experience of the belief-forming

process in question. As noted above—endnote 11—we can set the issue of Gettier-style luck (of which environmental epistemic luck is a sub-species) to one side for our purposes. Environmental epistemic luck was introduced in Pritchard (2009*a*; 2009*b*, chs. 3-4; 2012). See also Pritchard, Millar & Haddock (2010, chs. 2-4) and Kallestrup & Pritchard (2011; 2012; 2013).

¹⁶ In addition, the cognitive success in question *manifests* the subject's cognitive agency, which is a condition that does not follow merely from the claim that this cognitive success is creditable to that cognitive agency. In what follows we will take it as given that this manifestation condition is also met, both in cases of biological memorial knowledge and extended memorial knowledge. See Sosa (2007) and Turri (2011) for more on this point. For a general defence of the idea that knowledge requires both the exercise of cognitive ability and safe cognitive success, see Pritchard (2009*b*; 2012) and Pritchard, Millar & Haddock (2010, chs. 2-4).

¹⁷ An interesting question here is what happens to basic defeasible warrant that is subjected to a defeater which is subsequently defeated. Does the warrant continue to be basic, or is it now non-basic? We will be setting this question to one side in what follows. For helpful discussion of defeaters in this regard, see Plantinga (1993).

¹⁸ For further discussion of the brain lesion case in the context of cognitive integration, see Greco (1999) and Pritchard (2010; 2012).

¹⁹ Compare Burge's 'Acceptance Principle' according to which:

“A person is entitled to accept something as true something that is presented as true and that is intelligible to him, unless there are stronger reasons not to do so.” (Burge 1993, 467)

²⁰ See McGrath (2007) for a critical discussion of this implications of generativism in the epistemology of perception and memory. For a useful overview of the issues in this regard, see Bernecker (2011).

²¹ The general idea that memory preserves knowledge is known as the *epistemic theory of memory*. See, for instance, Malcolm's (1963, 223) suggestion that one remembers a proposition just in case one knows it *because* one knew it. See Bernecker (2009) for a sustained criticism of this position, and see Moon (2013) for a recent defence of the epistemic theory of memory in light of Bernecker's criticism.

²² Note that this condition is needed to safeguard against deviant causal chains between stored and recalled content as counting as *bona fide* memory.

²³ In particular, there isn't, for instance, any kind of deviant causal chain that infects Otto's causal connection between storage and retrieval in the default case.

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