

The Justification of Reconstructive and Reproductive Memory Beliefs

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Abstract Preservationism is a dominant account of the justification of beliefs formed on the basis of memory. According to preservationism, a memory belief is justified only if that belief was justified when it was initially held. However, we now know that much (if not most) of what we remember is not explicitly stored, but instead reconstructed when we attempt to recall it. Since reconstructive memory beliefs may not have been continuously held by the agent, or never held before at all, a purely preservationist account of memory does not allow for justified reconstructed memory beliefs. In this essay, I show how a process reliabilist account can maintain preservationism about reproductive memory beliefs while accommodating the justification of reconstructive memory beliefs. I argue that reconstructive memory is an inferential process, and that therefore the beliefs it produces are justified in the same way that other inferential beliefs are justified. Accordingly, my process reliabilist account combines a preservationist account of reproductive memory with an inferential account of reconstructive memory. I end by defending this view against objections.

Keywords memory · reliabilism · justification · preservationism · inference

1 Introduction

So many of our beliefs are memory beliefs. Right now, I believe that John was at the party last weekend, that eight times eight is sixty-four, that George Washington was the first president of the United States, that the movie last night made me sad, and that the substance I'm drinking is called 'coffee.' Am I justified in believing these things?¹ The answer depends on the way these beliefs are formed

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¹ Throughout, unless otherwise stated, I am interested in prima facie justification.

and maintained. Over the last century, psychologists have been advancing our understanding of how memory works, and some of the insights are surprising. We should ensure that our epistemology can accommodate the modern view of memory. In this paper, I defend a theory of the justification of memory beliefs that is epistemologically satisfying while taking the psychological facts into account.

One of the most remarkable breakthroughs in psychology is the discovery that memory is reconstructive as well as reproductive. Our memories are not simple recordings of past experiences; they can be affected by our current context as well as background beliefs and other memories. Much of what we remember is not explicitly stored, but is instead constructed or reconstructed when we attempt to recall it. This poses a problem for one of the dominant epistemological views of memory, preservationism. Preservationism is the view that memory cannot generate justification, but only preserve any original justification it had when it was formed.² Any beliefs reconstructed by memory cannot be justified according to this view. The preservationist has three choices: she can bite the bullet and accept that most of our memory beliefs are unjustified, deny that reconstructed memories really are memories, or modify her account to allow reconstructed memories to be justified. I defend the third option. Reconstructive memories are generated via inferential processes, and so, I argue, are justified in the same way as other inferences.

In section 2, I give a brief overview of the three traditional views of the justification of memory beliefs: foundationalism, preservationism, and inferentialism. I suggest that we want a view that avoids radical skepticism while also avoiding gullibility (being justified in too many beliefs) and rehearse arguments that preservationism satisfies these desiderata. However, I show that preservationism does not, on its own, provide a satisfactory account of the justification of reconstructed memories. The traditional preservationist picture is silent on cases where beliefs are reconstructed by memory. Section 3 examines the psychological evidence that many of our memories are, in fact, reconstructed. In section 4, I present a view that supplements preservationism for reproductive memories with inferentialism for reconstructive memories. Finally, in section 5, I defend this view against objections.

1.1 Terminology

Before continuing, I must first clarify what I mean by ‘memory belief.’ Is a memory belief a belief that is caused in a particular way, a belief with a certain phenomenal feel, or both? It is easy to see that these accounts are not extensionally equivalent. Martin and Deutscher (1966, 167–168) describe a painter who paints a scene from his childhood but insists that the painting was a product of his imagination rather than his memory. *Déjà vu* is thought to be a feeling of remembering caused when current experience is similar to remembered experience (Cleary 2008). The imaginative painter has a belief that is caused in the right way, but it feels like something imagined rather than something remembered. In *déjà vu*, the belief has the right phenomenology, but it is caused by present rather than past experience.

² Many preservationists claim that *knowledge* is preserved, but I am focused on the weaker claim about justification. See Lackey (2005) for compelling arguments against knowledge preservation.

As I am interested in applying the psychology of memory to its epistemology, I mean to be discussing beliefs that are caused in a particular way. By ‘memory belief,’ I refer to beliefs that result from an exercise of a particular mental faculty, memory, where memory is something like the “neurocognitive capacity to encode, store, and retrieve information” (Schacter and Tulving 1994). Not every belief resulting from an exercise of this capacity will have a ‘memorial feel’ and not every belief with such a phenomenology will be a result of the memory capacity. Accordingly, the painter counts as having a memory, but someone experiencing déjà vu doesn’t. As we will see, accepting this account of memory belief allows the philosopher to take advantage of the vast area of psychological work on memory.

It is also important for our purposes to allow for memories to be false. In English, ‘remember’ and its cognates require knowledge, or at least truth, for their application. If all memory is knowledge by definition, then the question of which of our memory beliefs are justified never arises. Instead, one must ask which of our apparent memory beliefs are actual. I find the former question to be a more elegant statement of the issue. I will use ‘remember’ and ‘memory belief’ to refer to the psychological process and the beliefs resulting from that process, whether those beliefs are true or false; justified or unjustified. A reader who finds my choice of language offensive may feel free to insert ‘apparent’ in front of the offending phrases as necessary. In this paper, when I write of ‘merely apparent’ memory beliefs, I am referring to beliefs that feel like memories, but were not produced via the cognitive faculty of memory.

2 Traditional Theories

Traditionally, there are three different views of how memory beliefs are prima facie justified; foundationalism, preservationism, and inferentialism.³ Justification is a three place relation between a subject, S , a proposition, P , and a time, t .⁴

Foundationalism S is prima facie justified in believing P on the basis of memory at t if S (seems to) remember that P at t .⁵

Preservationism S is prima facie justified in believing P on the basis of memory at t if

1. S was prima facie justified in believing P at the time the belief was formed, $t_0 < t$, and
2. S ’s belief that P was stored in memory between t_0 and t .

³ As we will see, it is somewhat strained to call inferentialism an account of the justification of memory beliefs, per se. Rather, it is an application of a general view of justification to cases of memory beliefs.

⁴ I am interested in doxastic, rather than propositional, justification. In what follows, I use “basis” to mean causal basis. In the definitions below, believing P on the basis of memory at t means that the subject’s belief that P at t is a result of a memory process. A belief with a particular causal basis will have very different justificatory bases depending on which of the views below is accepted. For example, according to inferentialism, the justificatory basis for a memory belief is not memorial at all.

⁵ Some externalist foundationalists will add a requirement that seeming to remember is a reliable process. See Plantinga (1993).

Inferentialism S is prima facie justified in believing P on the basis of memory at t if S has non-memorial evidence that P is true.⁶

To illustrate these views, consider the following case. Jenny believes on the basis of memory that Washington D.C. is the capital of the United States. Is she prima facie justified in this belief?

Foundationalism is the most straightforward of the three traditional views. According to an internalist version of foundationalism, if Jenny seems to remember it, then she is justified. An externalist foundationalist will have an additional external requirement, such as requiring that remembering be a reliable process and/or that she actually remembers rather than merely seems to. Assuming that these additional requirements are fulfilled, Jenny is justified.

According to preservationism, we will need to know the history of Jenny's belief. How did she originally learn that Washington D.C. is the capital of the United States? If she first believed it justifiedly—for example, she learned it from a trustworthy geography teacher—then her current memory belief is also justified. However, if she originally believed it unjustifiedly, then her current belief is still unjustified as long as she has not gained any new evidence in the meantime.

According to inferentialism, the fact that Jenny seems to remember that Washington D.C. is the capital of the United States provides no (or negligible) justification on its own. The only way it can be justified is if she has evidence that makes her memory belief likely to be true. For example, she might justifiedly believe that her memory is generally reliable in these sorts of cases, or she might believe that the United States Capitol Building is in Washington D.C. and that capitol buildings are located in capital cities. However, if Jenny has no such justified beliefs, then her belief that Washington D.C. is the capital of the United States is not justified.

2.1 Problems with Traditional Views

There is much to say about these three views; however, I have space here for only a brief overview.

The main objection to foundationalism is that it gives us too many justified beliefs. If foundationalism were true, the mere fact that a belief is an apparent memory would be prima facie justification for that belief, regardless of its past justificatory status. We often believe things we are not justified in believing, and sometimes we later seem to remember these things. According to the foundationalist, recalling the belief grants it justification even if it had no justification before. For example, consider a 'forgotten carelessness' case. Suppose that you hear from a source you know is unreliable that Americans landed on the Moon in 1969. You believe it anyway, perhaps out of a sense of patriotism. Clearly, you are not justified in this belief when you form it.⁷ Time passes, and you later recollect the fact. Are you justified in believing this now that you seem to remember it? According to the foundationalist, you are. Intuitively, you are not.⁸

⁶ This explication of the view is neutral on what it takes for a subject to have evidence as well as what counts as evidence.

⁷ This kind of objection is given by Senor (1993), Goldman (1999), and Huemer (1999).

⁸ A committed foundationalist might bite the bullet here and accept the result that you are justified in these beliefs. For example, Schroer (2008) claims that if you must accept it in

Inferentialism faces either skepticism or circularity depending on how memory beliefs are supported by other evidence. There are two options here. First, you might justify a memory belief with something like the following argument: (1) This belief is an apparent memory belief. (2) Apparent memory beliefs are highly likely to be true. Therefore, (3) this belief is highly likely to be true. It is hard to see how (2) will be justified without relying on memory.⁹ Second, you might require additional justification for each memory belief, rather than an overall assessment of the reliability of memory. For example, suppose Jane remembers that every equilateral triangle is equiangular. She also remembers a proof of this fact. Surely Jane is justified in believing this. However, it is not clear that she is justified on an inferentialist view. If the premises are remembered, but not their justification, then Jane is not justified after all; the premises are also memory beliefs, and so they too require an inferentialist justification. On the other hand, if Jane remembers the entire proof from first principles, then she is justified. However, now it seems like memory has nothing to do with it. She is justified only if she can rehearse a proof of it from first principles, and if Jane can do that, the fact that she seems to remember it is beside the point.

Preservationism avoids the problems of foundationalism and inferentialism. In cases where the original belief was unjustified, that status is preserved when it is remembered. It also avoids skepticism by requiring past justification rather than independent evidence. Still, according to preservationism too few memory beliefs will be justified. Since memory can only preserve justification, beliefs will only be justified if they were actually believed in the past. If the subject has not held the belief at some earlier time and continued to hold it in memory, there is no original justification to preserve. In the following section, I will give an overview of some work in psychology that makes this problem especially pressing. Then I will propose an account that solves this problem.

3 Reproductive and Reconstructive Memory

Most contemporary psychologists agree that there are several memory systems.¹⁰ Each memory system is a “neurocognitive capacity to encode, store, and retrieve information” Tulving (2005, 36). In what follows, I will focus on two memory systems: semantic and episodic.

Semantic Memory A semantic memory is a memory of a fact without a memory of any specific experience. For example, you remember that George Washington was the first president of the United States. All you remember is the bare fact. You do not remember hearing it, or reading it, or any other particular experience. Experienced events can also be the subject of semantic memories. For example, you can remember that you had a chocolate cake for your birthday last year without being able to recall your birthday party.

order to take the foundationalist position seriously at all. At that point, the argument is at somewhat of a stalemate.

⁹ Something like: “I have an apparent memory belief that, in the past, most of my apparent memory beliefs have turned out to be true.”

¹⁰ The precise number of distinct memory systems, details about their nature, and their realization in the brain are all hotly contested. However, the details I rely on are relatively uncontroversial.

Episodic Memory Episodic memory includes contextual information about experienced events, including how things looked, sounded, and smelled, as well as the emotions that were experienced. You can remember a delicious dinner in a way that you cannot remember George Washington being the first president of the United States.

Psychologists have put forth several different kinds of evidence for this distinction. One of the most prevalent is dissociations, where subjects experience impairment in one system while the other is largely unaffected. These dissociations are usually found in patients with certain types of brain damage. For example, the patient K.C. suffered severe damage to his hippocampus and medial temporal lobes. He suffered from complete amnesia when it came to remembering events and situations, but his memory for facts, even those about his own life, was unimpaired. K.C. and patients with similar patterns of impairment suggest that episodic memory is separate from semantic memory (Tulving 2002). Damage to certain parts of the brain disrupt certain brain processes; since episodic memory is more affected than semantic memory when these processes are disrupted, these processes must be more involved in episodic memory performance than in that of semantic memory.¹¹

Cubelli (2010) proposes a distinction between reproductive and reconstructive memory. Reproductive memory stores encoded information to be retrieved at a later time. Reconstructive memory uses stored information to construct a belief about a past experience.¹² The dominant view in psychology is that many episodic memories are reconstructive while semantic memories are reproductive. With reproductive memory, information retrieved is different from the information encoded by the memory system. Individual events are not stored with all details intact; instead, only a trace is stored. This trace, or a combination of traces, is then combined with general background beliefs and contextual information to reconstruct the episodic memory that is available to consciousness.¹³ The content of a memory formed in this way may not have been encoded or stored before the retrieval occurred. This is in contrast to reproductive memory where information that is encoded is the same (or very similar) to the information retrieved.

Reproductive memories can be described using a storehouse metaphor. According to this conception, memory is like a library. Information is encoded and stored in order to be retrieved at a later time, like information written in a book is stored in a library to be read later. Reconstructive memories cannot be described with the storehouse conception. As will be discussed below, because of episodic memory's reconstructive nature, it is misleading to think in terms of beliefs and contents that are stored for later retrieval. Reconstructive memory is not like a camera that takes snapshots of events for us to look at later. Koriat (2007, 243) claims that reconstructive memory is "an intentional, goal-directed attempt to reconstruct a memorial representation from a variety of pieces of information that

¹¹ Another way of establishing that different brain areas are responsible is by using brain imaging. An examination of that evidence is beyond the scope of this paper, but see Gabrieli (1998) for a review.

¹² Of course, one may not believe the output of a reconstructive memory process; however, I will focus only on beliefs here.

¹³ What kind of content traces have is controversial. I wish to remain neutral on this question. If they have belief-like content, then their justificatory status should be taken into account as well.

come to mind, negotiating between different considerations in attempting to arrive at a faithful account of previously encountered events.” Instead of a library, reconstructive memory is more analogous to a detective, determining what most likely happened using the available clues.

While reconstructive memory can sometimes lead to errors, it also allows us to imagine the future, update our beliefs, and to be more creative (Schacter et al 2011). Studying memory errors is similar to studying perceptual illusions in order to understand perception in normal cases. The kinds of errors that are made reflect the workings of the cognitive system that produces them. I will briefly summarize some of the most studied types of errors here.

Eyewitness Testimony Eyewitness testimony is extremely susceptible to manipulation after the experience of the event. In Loftus (1975), subjects watched a film of a traffic accident and were asked questions about it. Depending on the question asked, people seemed to remember the accident differently. For example, subjects gave significantly higher estimates of speed when they were asked how fast the cars were going when they *smashed into* each other than when asked how fast they were going when they *hit* each other. Additionally, when asked the *smashed* question, subjects were more likely to falsely report shattered glass on the scene when there was none. Additional studies are reviewed in Loftus (2005).

Word Lists In Roediger and McDermott (1995), subjects were asked to memorize lists of several related words. The lists were designed to exclude a word that was strongly related to other words. For example, in lists including ‘bed,’ ‘awake,’ and ‘rest,’ the word ‘sleep’ was omitted. When asked to recall the list later, or to recognize items that were on the list, a large number of subjects erroneously included ‘sleep.’ These results have been replicated and expanded in a large number of follow-up studies (Gallo 2010).

Objects in a Scene In Brewer and Treyens (1981), subjects were brought into an office with various objects in it. Some were objects that one would expect to find in an office at the time, like a typewriter and chairs, and others were not—a skull, for example. Many subjects reported seeing objects, like books, which would typically be found in an office but were not present in this case. Many subjects remembered incongruous items like the skull as well. In a more recent study using photographs of naturalistic scenes, Hemmer and Steyvers (2009) further examine the influence background schemas on episodic memory.

Imagination Inflation In Mazzoni and Memon (2003), subjects either read about an event or were asked to imagine the event taking place. These events were either common and frequently occurring or ones that subjects could not have actually experienced—a long-discontinued medical procedure, for example. For both types of event, subjects were more likely to report remembering a non-experienced event when they imagined it versus merely reading about it. Under one condition of the experiment, 30 percent of subjects formed a false memory for the never-performed procedure after imagining it.

Since episodic memory is reconstructive rather than reproductive, there is no guarantee that we only episodically remember things we have previously believed.

The false memory studies mentioned above are all examples of this. In *Objects in a Scene*, for instance, it is presumed that the subjects did not believe that there were books while they were actually in the office. Perhaps some subjects did indeed believe that books were in the office during the experiment, even though they could not see them, but this is unlikely to explain every case. In at least some instances, the belief that books are in the office comes about later; it is more aptly described as *constructed* rather than reconstructed. In cases where the belief was held at the time of encoding, it is still not necessarily the case that the belief exists during the time between when it was first formed and when it is later reconstructed, as shown in *Word Lists*. Presumably, some subjects reconstruct the belief that a word like "bed" was on the list, even if this was in fact believed at one point (e.g., when they were looking at the word) and then forgotten. We need an account of the justification of memory beliefs that can accommodate these facts. In the remainder of this paper, I will present such an account.

4 Preservationism and Inferentialism

In this section, I develop a process reliabilist account of memory. The basic idea behind process reliabilism is that the justification of a belief should depend on the reliability of the process or processes that caused the belief (Goldman 1979/2008). Processes have inputs and outputs. Process reliabilism is interested in processes that have a belief as an output. Reliabilists typically distinguish two main types of processes depending on what kinds of inputs they take. A belief-independent process has no beliefs among its inputs. A belief-dependent process is one in which some of the inputs are beliefs. For a belief resulting from a belief-dependent process to be justified, all the input beliefs must themselves be justified and the process must be conditionally reliable. Conditional reliability is the reliability of the process on the condition that all the input beliefs are true.

Memory is usually considered to be a prototypical belief-dependent process. As explained above, reproductive memory and reconstructive memory are actually two different kinds of processes. Reconstructive memory is clearly a case of a belief-dependent process. Reproductive memory is also a belief-dependent process, but in a different way—the input belief is that very belief from an earlier time. I claim that long-term memory actually involves two types of belief-dependent processes, synchronic and diachronic. Synchronic belief-dependent processes take beliefs at a time as inputs and outputs beliefs at that same time.¹⁴ Inference is a synchronic belief-dependent process, as is reconstructive memory. Diachronic belief-dependent processes take beliefs at one time as inputs and output beliefs at some later time. Reproductive memory is a diachronic belief-dependent process.¹⁵

We must first decide if the process is conditionally reliable to determine whether a belief formed by a belief-dependent process is justified. Secondly, we must determine if the input beliefs are justified. So, for now, supposing that the processes *are* conditionally reliable, our generated memory belief will be *prima facie* justified just in case the beliefs used to generate it are justified.

¹⁴ More precisely, the output beliefs are produced shortly afterward given that processes take some time to complete.

¹⁵ Michaelian (2011) suggests process reliabilism as an account of reconstructive memory. His account does not distinguish between synchronic and diachronic belief-dependent processes.

Using the distinction between synchronic and diachronic processes above, we can specify *when* input beliefs need to be justified. Input beliefs must be justified at the time they are used as inputs to the process. The input belief in the case of reproductive memory must be justified at the time it is encoded; this is when it is taken as an input to a reproductive memory process. For reconstructive memory, the input beliefs are used at the time the memory is generated, so they must be justified at that time.

The view is as follows:

S is justified in believing *P* at time *t* on the basis¹⁶ of memory if:

1. *S*'s belief that *P* was reproduced via a conditionally reliable diachronic memory process and *S* was justified in believing *P* at the time of encoding, *t*₀, or
2. *S*'s belief that *P* was reconstructed via a conditionally reliable synchronic memory process and for all input beliefs, *X*, used to generate *S*'s belief that *P* at *t*, *S* is justified in believing *X* at *t*.

I suggested in section 2 that the justification of reproductive memories is best accounted for by a preservationist account. The reproduced memory is justified only if it was justified at the time it was originally formed. We saw in the previous section that reconstructive memory is generated using traces and our background reproductive memory beliefs. Generated memory is our memory system's best educated guess about the past given the information available. Since reconstructive memory works like a detective, it makes sense that the beliefs it generates are justified in the way that a detective's beliefs would be. Miss Marple's belief that the butler did it is not justified merely because it was the output of Miss Marple's investigative process, no matter how good a detective she is. The evidence and background beliefs she bases her judgment on must themselves be justified.

To take an artificially simple example, let's say that I form an episodic memory that there was a book on the desk in my office last Thursday. Suppose that the memory was constructed based on my beliefs that I typically leave books on my office desk and that last Thursday was a typical day.¹⁷ This belief is formed using a reconstructive memory process, so it is synchronic. My belief that there was a book on my desk last Thursday will be justified only if the beliefs my memory processes use to construct it are themselves justified. Now, suppose that one of these input beliefs, my belief that I typically leave books on my office desk, is purely reproductive. This case falls under clause 1. This belief is justified only if the belief it was based on—that very belief when I initially acquired it—was justified at the time of encoding. Assuming that my memory is generally reliable, my belief about the book will be justified as long as I am justified in believing that I typically leave books on my desk. I am justified in believing that I typically leave books on my desk only if I was justified in believing that when it was first encoded into memory.

According to this view, reproductive memory preserves justification while any new beliefs constructed by memory are justified inferentially. Note that the con-

¹⁶ By 'basis,' I mean psychological basis.

¹⁷ Of course, in any actual case, there will be more beliefs used, but as long as they are all justified, the memory belief is justified. Additionally, non-belief factors, such as a memory trace of my experience of the books on the desk might or might not be instrumental in the reconstruction.

tent of these constructed beliefs may or may not have been previously entertained or may have been entertained at the time but not stored. This account supplements the preservationist view of reproductive memory with an inferentialist view of reconstructive memory. Unlike the pure preservationist view, this account can accommodate newly constructed memory contents. It does this by making a distinction between semantic and episodic memories based on a modern psychological view of how the processes that produce these beliefs work. In the final section of this paper, I will defend this view against three principal objections.

5 Objections

5.1 Reconstructive Memories Aren't Memories

My view supplements preservationism with inferentialism for reconstructive memory beliefs. The preservationist can resist this move by denying that these beliefs really are memories. If they are not memory beliefs, then they do not pose a problem for a theory of the justification of memory beliefs.

It is tempting to view this as simply a terminological dispute. I explained in the introduction that my usage of "memory" isn't ordinary English usage. Perhaps preservationists are merely interested in the class of beliefs that are picked out by the folk concept of memory. They are, of course, free to have such a theory. However, this move is problematic. Since most of our episodic memory beliefs are reconstructed, denying that these are memory beliefs would mean that many of the beliefs we take to be memories *really* are not. I take that to be an unacceptable cost for a view meaning to adhere to a folk understanding of memory; still, some might be willing to bite this bullet. In that case, reconstructive memory beliefs are not 'memory beliefs', properly speaking. However, regardless of what we want to call them, we still need an account of how these generated 'memory' beliefs are justified.

Many preservationists would be uncomfortable going this route. If by discussing memory beliefs, they mean to be talking about a psychological kind, rather than a folk concept, my argument is even stronger. I have presented psychological evidence for viewing both reconstructive and reproductive memories as memory in the psychological sense. They may be different cognitive systems, but they are both memory systems in the fullest sense; just as vision and hearing are different cognitive systems but are still both perceptual. A theory of the justification of perceptual beliefs must apply to hearing as well as vision.

5.2 Skepticism

Avoiding skepticism was one of the desiderata discussed in section 2. Preservationism avoids the radical skepticism of the inferential view. By combining preservationism with inferentialism, my view also avoids skepticism about reproductive memories. However, it is subject to another kind of skeptical problem.

Huemer (1999) presents a new evil demon style worry about preservationism. Consider a situation where the world was created five minutes ago with an intrinsic duplicate of you. Since she is your duplicate, she has all the same beliefs you do.

However, any memory beliefs your duplicate has that were not originally formed in the previous five minutes must be unjustified according to preservationism. The duplicate has obviously never held the belief before since there was no earlier time for her to have it. However, you are justified in this belief as long as you were justified in forming it. Preservationism would lead to the result that you are justified but your duplicate is not.

Huemer suggests the following “dualistic theory” to solve this problem:

On this view, a belief is justified full stop if and only if one had an adequate justification for adopting it at some point, and thenceforward one was justified in retaining it. The normal functioning of memory, in the absence of specific reasons for revising a belief, constitutes an epistemically acceptable manner of retaining beliefs... [C]oming to believe something by seeming to remember it (in the absence of defeaters one is aware of) is an epistemically rational way of acquiring the belief. (1999, 351)

According to Huemer’s dualistic view, both you and your duplicate are justified. You are justified because you were justified in adopting it and are justified in retaining it via the normal functioning of memory—the standard preservationist story. Your duplicate is justified because she came to believe it by seeming to remember it—the foundationalist aspect. The dualistic theory allows us to gain the benefits of preservationism while allowing for cases where (apparent) memory generates beliefs.

When it comes to the psychology of reconstructive memory, Huemer’s view fails because it faces a version of the problem that his account is meant to avoid. Constructed memories count as coming to believe something by seeming to remember it, and so such memories will be subject to the foundationalist treatment that Huemer endorses. However, constructed memories are sometimes generated by background beliefs that are unjustified. In such cases, Huemer’s view faces the same issue that led him to reject the pure foundationalist theory: we will be justified in accepting whatever we seem to remember constructively, in the same way that the pure foundationalist theory entails blindly accepting whatever we seem to remember reproductively.

To see this, consider a modified ‘forgotten carelessness’ case. Suppose that you read in *The Onion*, a satirical newspaper, that there is a new trend sweeping graduate student offices. They have started using typewriters to compose their dissertations rather than computers. You realize that it is a joke but believe it anyway. Over time, you retain this belief while forgetting the source. Now, when trying to remember the contents of the office, you use your unjustified stored belief that offices often contain typewriters to construct a belief that there was a typewriter in this office. However, since the constructed memory belief is merely apparent, it is foundationally justified according to Huemer.

5.3 Memory is Epistemically Basic

I have been defending a view where memory is a belief-dependent process, and so is not a basic source of justification. Reproductive memories inherit the justification of the original belief while reconstructive memories depend on the justification of the beliefs used to construct them. However, Lyons (2009) provides an account

according to which memory is epistemically basic. Just because memory beliefs are psychologically caused by other beliefs does not mean they rely on those beliefs for their justification. This results in foundationalism about memory. Lyons (2009, 144) gives the following account of basic beliefs:

- (B) A belief B is basic for S at t iff B is the output at t of one of S 's cognitive systems that
1. is inferentially opaque,
 2. has resulted from learning and innate constraints, and
 3. does not base its outputs on any doxastic inputs at t .

I agree that memory satisfies the first two requirements for basicity. The point of contention is whether it satisfies the third. If outputs of memory are based on doxastic inputs at the time of retrieval, then memory is not basic.

First, let us consider simple reproductive memory belief that is caused by the original belief. It would seem that this memory belief is based on doxastic input. However, this original belief is no longer accessible. According to Lyons, this disqualifies it for being a basis for the memory belief. What is accessible to the memory system are stored representations that may or may not be beliefs.¹⁸ Here is Lyons' explanation of the problem:

“The stored representations may be based for Σ [memory system] on the old belief tokens, and the new belief tokens may be based for Σ on these, but it does not follow that the new tokens are based on the old tokens. The basing relation is not transitive. If an output is based for an agent on e [evidence] at t [time], then e is accessible at t to that agent and the same holds for modules. In an ordinary memory case, the belief tokens occurrent at t_e [time of encoding] no longer exist and thus are not accessible to the system at t_r [time of retrieval]; thus they cannot be part of the system's grounds for its outputs. . . . So in the standard case of memory, the output beliefs are not based on the input beliefs, even for Σ .” (2009, 140)

This basing relation requires that if an output is based on e at t , then e is accessible at t . The original belief is inaccessible at the time of retrieval, so it cannot form the basis for the memory belief. Preservationism requires the denial of this temporal accessibility requirement, and thus Lyons' view rules out preservationism entirely.

Several problems should lead us to abandon Lyons' view. As a purely foundationalist view, it is subject to the same objection discussed in section 2: it simply gives us too many justified memory beliefs. Interestingly, it also faces the opposite danger, skepticism. Lyons rejects the connection between belief dependence and non-basicality, so memory must be unconditionally reliable for the beliefs it generates to be justified. However, it is reasonable to suppose that memory processes are at great risk for being unconditionally unreliable. For example, we all have many false beliefs that have been stored in memory. This problem becomes more pressing if we are worried about Huemer's example of duplicates in a five-minutes-old-world (discussed in the previous subsection). In that case, almost all of the duplicate's (apparent) memory beliefs are false, and so their memory is unconditionally unreliable if anything is. This means that even their memories about the immediate past (fewer than five minutes ago) are unjustified.

¹⁸ For the time being, let us assume that the stored representations are not beliefs.

Another problematic feature of this account is that beliefs can become unjustified merely by passing into memory. Take the case of a cult member raised in isolation from outside influence. The cult leaders, whom she trusts implicitly, inculcate many false beliefs in her so that she has more false beliefs than true ones. However, she is at least *prima facie* justified in these beliefs; she has no way of discovering that the leaders are untrustworthy. Now suppose these beliefs become memories. She has not forgotten anything, and she has not gained any new evidence in the meantime. Since she has more false beliefs than true ones, her memory is unreliable, and these beliefs are now unjustified. This is very counterintuitive.

Now, let us turn to reconstructive memory. Lyons suggests that even though a memory system has access to the stored representations and beliefs used in the reconstruction, the larger subject does not. “All I know about these representations I must either piece together from the outputs of Σ or discover by way of empirical research in the psychology of memory.” (2009, 141) Lyons considers beliefs to be defined by a certain functional role, but a representation may play that functional role within a cognitive system without playing that role in the larger organism.¹⁹ Since the constructed memory belief is based on the stored representations, these representations are playing the belief role within the memory system itself. However, Lyons claims, they do not play that role for the agent as a whole. According to Lyons, these representations are similar to the complex mathematical assumptions that one’s visual system uses to construct visual representations.

While I believe that what Lyons claims is true of some stored representations in a memory system, such as a memory traces, it is not true for all of them. For example, it is not unreasonable to suppose that many of the priors or schemas used to construct episodic memories are things that I believe. For example, the representation that graduate student offices likely contain books is just the kind of thing that I can, and do, believe. In fact, the argument that memory errors are the result of adaptive processes relies on this fact. My office schema is used to construct episodic memories as well as to form expectations of what I might find when entering a new office for the first time. Since these stored representations are used by memory processes and are things that I can explicitly endorse, I would argue that they are beliefs that I, and not merely my memory system, have.

6 Conclusion

The purpose of reconstructive memory is not to preserve old beliefs, but to construct new beliefs about the past based on our often limited reproductive memory and our current background beliefs. According to preservationist accounts of memory, a memory belief is justified only when that belief was previously justified. Since reconstructive memory beliefs may not have been held before, or might not have been continuously held, a purely preservationist account of memory cannot accommodate justified reconstructed memory beliefs. Reconstructive memory is an inferential process, and the beliefs it produces are justified in the same way

¹⁹ We must be “careful to distinguish belief, the global property of an individual, from beliefs, occurrently tokened mental representations with a certain functional role. Whether, in the end, I believe that p might very well depend on how my central systems deal with some mental representation of p , but this is perfectly compatible with the claim that this representation of p is the output of some perceptual module.” (2009, 92)

that other inferential beliefs are justified. We can retain a preservationist account of reproductive memory as long as we add an inferential account of reconstructive memory.

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