The justificatory power of memory experience

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Abstract

Psychological research has discovered that episodic memories are constructive in nature. This paper examines how, despite being constructive, episodic memories can provide us with justification for beliefs about the past. In current literature, two major approaches to memorial justification are internalist foundationalism and reliabilism. I first demonstrate that an influential version of internalist foundationalism, dogmatism, encounters problems when we compare certain types of memory construction with cognitive penetration in perception. On the other hand, various versions of reliabilism all face skeptical challenges. I propose an alternative, two-factor theory that recognizes an epistemic distinction typically overlooked by dogmatism and reliabilism. Although our account leaves certain aspects unspecified, it is an important step forward.

Keywords

Cognitive penetration · Episodic memory · Foundationalism · Memory construction · Memory justification · Reliabilism

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1 Introduction

Your city is under a wide-scale lockdown. To keep yourself busy while you are stuck at home, you organize some old photos into a scrapbook. Looking through the albums, you see a picture of you at the beach in Bali, which immediately brings back your favourite memories from that trip. You further recall that on the day at the beach, you had a severe sunburn, and ended up going to a local hospital for treatment the next day.

In psychology and philosophy, researchers differentiate between two distinct types of declarative long-term memory. One type is episodic memory. It is typically understood as the capacity for remembering specific episodes or events that

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happened in the past, and recalling episodic memories involves subjectively re-experiencing the relevant past episodes or events (Tulving, 2002). For example, the sunburn case above is an episodic memory. The other type of declarative long-term memory is semantic memory, which is often defined as the capacity for remembering abstract information, and for which subjectively re-experiencing the past episodes or events is non-essential. For example, a memory about the Opium Wars would be a semantic memory.

This paper focuses on episodic memory. I refer to the subjective experiences involved during memory retrieval as "memory experiences." In the epistemology of perception, it is often taken as a starting point to postulate that perceptual experiences have propositional contents (Siegel & Silins, 2015; Smithies, 2019). Given that our discussion compares memory experiences with perceptual experiences, I likewise assume, for the sake of discussion, that memory experiences have propositional contents. Such an assumption need not collapse the distinction between episodic and semantic memories (Werning & Cheng, 2017; cf. Rowlands, 2018; Senor, 2022). Just as assigning propositional contents to perceptual experiences need not collapse the distinction between perceptual experiences and beliefs, other features, such as the sensory nature of memory experiences, could still differentiate episodic from semantic memories. It is beyond the scope of this paper to offer a comprehensive account of memory content or delve into the distinction between episodic and semantic memories.

Just like perceptual experiences, memory experiences are believed to have justificatory power, in the sense that they can provide us with justification for beliefs about the past. For example, when you recall that you visited a local hospital in Bali for sunburn treatment, your memory experience justifies believing that this episode indeed happened. While it is possible to utilize memory contents for inference, this paper primarily focuses on beliefs formed by taking memory experiences at face value. There is an important debate in the epistemology of memory concerning whether memory can provide any new justification, or whether it can only preserve justification obtained from other epistemic sources (Lackey, 2005; Senor, 2017; Tooming & Miyazono, in press). Although it is not our goal to adjudicate this debate, the theories considered in this paper are compatible with generativism. Finally, epistemologists distinguish justification to form a belief from that to maintain a belief. This paper focuses on the justificatory power of memory experiences with respect to beliefs that are, or need to be, newly formed. I set aside cases in which one has already believed the relevant propositions before memory retrieval.

Now, let's consider the following question: in virtue of what do memory experiences provide justification? There are two major approaches to this issue in current literature. The first is internalist foundationalism. One prominent version under this approach is dogmatism, which proposes to explain the justificatory power of memory experiences in terms of their distinctive phenomenal character:

> **Dogmatism:** If a memory experience has a distinctive kind of phenomenal character with respect to the proposition that P, then the experience thereby provides us with prima facie justification to believe that P.[1]

There is a debate concerning the most appropriate way to characterize the distinctive phenomenal character (Brogaard, 2017). There is a further controversy surrounding whether such phenomenology is intrinsic to memory experience or forms a concurrent metacognitive state that accompanies the memory state (Dokic, 2014; Perrin & Sant'Anna, 2022). I set aside the second issue.[2] Regarding the first subject, one account of the distinctive phenomenology suggests that it encompasses a feeling as if a memory experience assures us of the truth of a proposition about our past. Such a depiction draws an analogy between the phenomenology of memory experiences and that of perceptual experiences, where the latter is considered to involve a feeling as if a perceptual experience assures us of the truth of a proposition about our current surroundings (Huemer, 2001; Pryor, 2000). It is worth noting that nothing in our discussion below hinges on endorsing this exact characterization.

The second approach to the justificatory power of memory experiences is reliabilism:

> **Reliabilism:** If a belief that P is formed by taking a memory experience at face value, then this memory belief is prima facie justified just in case the belief-forming process is reliable.[3]

A belief-forming process is reliable in the sense that it tends to generate a high proportion of true beliefs relative to false ones.

While reliabilism primarily focuses on the justificatory status of belief, (Goldman, 1979) thinks that this idea can be expressed in terms of either doxastic or propositional justification. Doxastic justification assesses whether a belief is justified, whereas propositional justification evaluates whether someone is in a position to justifiably accept a proposition, regardless of whether they have formed the belief or not. To capture propositional justification, reliabilism may be reformulated into the following thesis:

> **Reliabilism-PJ:** A memory experience provides us with prima facie justification to believe that P just in case there is a belief-forming pro-

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[1] The memory version of dogmatism is explicitly formulated and discussed by (Brogaard, 2017); other adherents of internalist foundationalism include Audi (1995), Conee & Feldman (2004), Huemer (1999), Pollock & Cruz (1999), and though with reservations, Schroer (2008).

[2] In other works (Teng, 2023a, 2023b), I argue that the distinctive phenomenology commonly attributed to perceptual experience is, in fact, a metacognitive state that accompanies the perceptual state.

[3] Some adherents of reliabilism include Bernecker (2008), Goldman (1979), Grundmann (2022), Lyons (2009), Michaelian (2016a), and Salvaggio (2018).

cess available from the former to a belief that P and the belief-forming
process is reliable.

In the remainder of this paper, I first challenge dogmatism and reliabilism. I high-
light the issue with dogmatism by comparing certain types of memory construc-
tion with cognitive penetration in perception. I demonstrate how various versions
of reliabilism all face skeptical challenges. The problems of dogmatism and reli-
abilism prompt us to seek for an alternative theory. Consequently, I propose a
two-component theory concerning the justificatory power of memory experiences.
While this theory leaves certain aspects unspecified, it recognizes an epistemic dis-
tinction that both dogmatism and reliabilism overlook, making a significant step
forward. The discussion offers a fresh perspective on what is epistemically given to
us and what we make in the realm of memory. Subsequent sections, 2 and 3, reveal
the inadequacies of dogmatism and reliabilism. Section 4 introduces and defends
our two-factor theory.

2   The Inadequacy of Dogmatism

Dogmatism posits that having a distinctive phenomenology is sufficient for a mem-
ory experience to provide prima facie justification to believe the relevant propo-
sitions about the past. It is a strong runner among current theories. Much like
foundationalism on perceptual justification, foundationalism on memorial justifi-
cation not only aligns with our reflection on everyday examples but also gives the
advantage of solving the regress problem (Senor, 2019). Second, in line with an
argument supporting perceptual dogmatism, it is pointed out that the distinctive
phenomenology associated with memory experience constitutes forceful epistemic
reason for embracing the relevant propositions (Huemer, 2001). Absent defeaters,
what else are we supposed to believe?

It is a well-established fact that episodic memories are highly constructive, in-
volving information modification at various stages of the memory process (Schac-
ter et al., 2022). To begin with, personal-level mental states and contextual infor-
mation can influence how an episode or event is encoded into long-term memory
(Alba & Hasher, 1983). Additionally, the stored information, or "memory traces,"
can undergo changes from the stage of encoding to memory retrieval. [4] Over time,
the specific details of a past episode or event may fade rapidly, while the essential
gist and other more abstract information tend to remain stored for longer periods
(Brainerd & Reyna, 2002; Reyna et al., 2016). Furthermore, during memory retrieval,
a preserved trace can be flexibly combined with memory traces from other past
episodes or events, personal-level mental states, and newly acquired information
to give rise to a memory experience (Carpenter & Schacter, 2017; Devitt et al., 2016;
Loftus, 2005).

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[4]   For further discussions on the concept of memory trace, see De Brigard (2014a, 2020).

In contesting dogmatism, I bring our attention to some lesser-discussed studies, which suggest that conative states such as desires and motivations can influence the generation of a memory experience. A number of experiments have demonstrated that we tend to remember our personal history as more positive than it actually was (Adler & Pansky, 2020; Skowronski, 2011). For example, college students recalled receiving more "A" grades in high school than they in fact did (Bahrick et al., 1996, 2008). And they recalled a higher condom use than what their diaries recorded (Garry et al., 2002). One plausible explanation is that the subjects' desire to maintain a positive self-image led them to reconstruct memories with self-enhancing contents during memory retrieval.

In the rest of this paper, I assume that it is psychologically possible for conative states to affect the generation of memory experiences. For the sake of discussion, let's consider the following hypothetical case:

> **Social distancing:** In response to the severe epidemic situation, Ang's city required that individuals wear masks when entering public areas. When interrogated about his compliance with this measure, Ang's desire to keep a positive self-view prompts him to remember that he consistently wore a mask, including during a recent walk in his neighborhood, although that was not the case.

Does Ang's memory experience provide him with justification to believe that he wore a mask during a recent walk? I believe the answer is no. The inappropriate etiology of Ang's memory prevents it from having justificatory power. This case serves as a counterexample to dogmatism, which posits that having a distinctive phenomenology is sufficient for a memory experience to confer justification.

Before offering further support for this argument, I'd like to clarify two points. First, the charge is not that Ang's memory experience lacks justificatory power with respect to all beliefs. I do not deny that Ang's memory experience justifies believing that he took a walk in his neighborhood. Rather, the claim is only that the experience lacks justificatory power with respect to the content directly affected by Ang's desire—namely that he wore a mask during the walk. Second, our argument by no means implies that the influence from conative states on memory experiences is pervasive. Even if this type of influence is rare, its epistemological implication poses a challenge to dogmatism.

In the remainder of this section, I reinforce this argument with a comparison between the social distancing case and cognitive penetration in perception. After that, I consider one potential response from dogmatists to our objection.

Cognitive penetration refers to the psychological phenomenon in which personal-level non-perceptual mental states such as beliefs and desires can influence perceptual experiences. In epistemology, researchers have been intrigued by the implication of this phenomenon for perceptual experiences' justificatory power, regardless of whether there is firm evidence that the phenomenon indeed

happens.[5] Many contend that at least some such experiences fail to provide the subjects with justification to believe the penetrated contents.[6] Consider this case:

> **Preformationism:** Preformationists want to confirm their theory. When they look at sperm cells under a microscope, they see little embryos in the cells. However, due to its inappropriate etiology, this experience fails to justify the perceptual belief that the observed sperm cells contain human embryos.[7]

I want to draw your attention to the similarity between the etiology of Ang's memory experience and that of the preformationists' perceptual experience. I highlight three features, and demonstrate that Ang's memory experience is also characterized by these features. The analysis of what makes such etiology inappropriate will be addressed in section 4.

First, in cognitive penetration, the influence on perceptual experiences comes from personal-level mental states. Such influence differs from that from assumptions within the perceptual system. For example, faced with a convex object, the perceptual system takes in sensory data that are compatible with two different possibilities—the object is convex and illuminated from above, or the object is concave and illuminated from below. However, with the assumption that lights normally come from above, the perceptual system gives rise to an experience that represents a convex object. This kind of top-down influence does not count as cognitive penetration.

Second, in cognitive penetration, the influence is synchronic rather than diachronic, in the sense that it happens at roughly the same time as the perception of the external stimulus. One example of diachronic influence from personal-level states might be perceptual learning. During training, repeated exposure to beliefs such as "x has such-and-such features" induces long-term changes within the perceptual system. However, after expertise is developed, these beliefs might no longer be operative in one's perceptions (Connolly, 2019; cf. Jenkin, 2023; Stokes, 2021). Such influence is compatible with perceptual experiences being synchronically cognitively impenetrable.

Finally, some researchers suggest that for the influence from personal-level states on perceptual experiences to qualify as cognitive penetration, the former must bear a coherent semantic relation to the latter (Hohwy, 2013; Macpherson, 2012; Pylyshyn, 1999). Consider a case where preformationists' desire leads them to perceive sperm cells as smaller than their actual size. In this case, the causal relationship is semantically unintelligible, and according to the current understanding,

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[5] For some recent discussions of the cognitive penetrability of perception, see Firestone & Scholl (2016), Green (2020), Lupyan (2015), and Macpherson (2012). For some recent reviews of the epistemological implication, see Georgakakis & Moretti (2019), Silins (2016), and Teng (Teng, in press).

[6] For defenses of this position, see Ghijsen (2016), Lyons (2011; 2016), Long (2018), McGrath (2013), Munton (2019), Siegel (2012, 2017), Teng (2016, 2021), Vahid (2014), and Vance (2014).

[7] This case was first presented by Siegel (Siegel, 2012).

the effect fails to constitute cognitive penetration. Conversely, the original preformationism case meets this condition.

Note that the etiology of Ang's memory experience exhibits similar features:

Influence from a personal-level mental state: Ang's memory experience that he wore a mask is influenced by his desire to maintain a positive self-view.

Synchronicity: The influence occurs at roughly the same time when Ang's memory experience is generated, rather than long before its generation.

Semantic intelligibility: The influence is semantically intelligible.

In the original preformationism case, preformationists' experience lacks justificatory power due to its inappropriate etiology. Now, since the etiology of Ang's memory experience shares important similarities with that of preformationists' experience, it is reasonable to posit that Ang's experience also lacks justificatory power. The comparison with cognitive penetration strengthens our argument, showing that the social distancing case presents a counterexample to dogmatism.

While our focus is on conative states, it is important to elucidate that the impact from other personal-level states can also undermine the justificatory power of resulting memory experiences. In the epistemology of cognitive penetration, unjustified beliefs are considered as capable of diminishing the justificatory power of perceptual experiences. Preformationists might instead hold an unjustified belief in preformationism, leading them to perceive human embryos in sperm cells. The experience fails to justify the perceptual belief that the observed sperm cells contain embryos. A parallel conclusion applies to memory as well. If Ang holds an unjustified belief that he consistently wore a mask, causing him to recall doing so during a recent walk, then this memory experience also seems to lack justificatory power.

Before ending this section, I address a possible response from dogmatists to the social distancing case, which posits the presence of a defeater to explain why Ang lacks justification for the relevant memory belief. In particular, one might argue that Ang's memory experience offers prima facie justification in virtue of its distinctive phenomenology, but it fails to offer ultima facie justification because his desire's influence on the experience acts as a defeating condition.[8]

To maintain dogmatism, the employed concept of defeater must align with the broad internalist framework; otherwise, it becomes unclear how the purported defeater could affect Ang's epistemic position.[9] However, Ang need not be aware of the influence from his desire on his memory experience—both the desire and the

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[8]   For further discussions on the prima/ultima facie distinction, see Senor (1996).

[9]   For further discussions on defeater, see Bergmann (2006) and Pollock & Cruz (1999).

influence can operate unconsciously. In such a scenario, there is no apparent defeater to appeal to in order to account for the lack of justification of Ang's memory belief.[10]

3   The Inadequacy of Reliabilism

My objection to reliabilism targets the necessity of reliability for memorial justification. The objection can be formulated into the following argument:

> **(P1) Questionable reliability:** The pervasiveness of memory construction makes it, at least, indeterminate whether taking a memory experience at face value constitutes a reliable belief-forming process.

> **(P2) No skepticism:** Extensive skepticism about memorial justification is untenable.

> **(C) Reliabilism's challenge:** Hence, reliabilism faces a skeptical worry by requiring reliability as a necessary condition for memorial justification.[11]

I take (P2) as a common point of departure in epistemology. In this section, my focus is on establishing the truth of (P1). After illustrating the skeptical worry with a concrete case, I will strengthen the objection by examining potential responses from reliabilists.

Before diving into the details, I would like to provide some clarity on the nature of our objection to reliabilism. One classic counterexample raised to the view is clairvoyance, where beliefs formed through clairvoyant perception can exhibit extremely high reliability while still appearing intuitively unjustified (Bonjour, 1980). In response, reliabilists sometimes appeal to an updated theory that divides epistemic evaluation into two stages: people first compile lists of approved and disapproved belief-forming processes; then they use these lists to assess the justificatory status of specific beliefs. Because clairvoyance is taken as similar to disapproved processes, the relevant beliefs are deemed unjustified (Fricker, 2016; Goldman, 1992). When arguing that reliabilism faces a skeptical worry, I am addressing simple reliabilism rather than approved-list reliabilism. I do not intend to suggest that memory must be excluded from the list of approved belief-forming processes. My argument is merely that requiring reliability for memorial justification poses a threat of wide-ranging skepticism, rendering simple reliabilism problematic.[12]

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[10] In the context of cognition penetration, Siegel (2012) provides a similar response to the defeater argument.

[11] This objection is not entirely new. For further discussions, see Lai (2022), Puddifoot & Bortolotti (2019), and Shanton (2011).

[12] Thanks to an anonymous referee for prompting me to provide further clarification on this matter.

To show the pervasiveness of memory construction and its implications for reliability, let's delve into a well-studied phenomenon known as the Deese-Roediger-McDermott effect, or DRM effect for short (Gallo, 2006, 2010; Roediger & McDermott, 1995). In a standard paradigm investigating this effect, subjects are presented with a list of words, such as "bed," "rest," and "awake." These words are closely related to another word, such as "sleep," but the latter is not included in the list. Later, the subjects are requested to either freely recall or recognize words that were on the original list. During these tasks, the subjects need to make "remember" or "know" judgments. "Remember" judgments are made when the subjects can recall specific details about the words' occurrence, while "know" judgments are made when they cannot recall details but still believe that the words occurred. The results of experiments on the DRM effect consistently reveal that many subjects recall details about the occurrence of related but non-presented words, as demonstrated by their "remember" judgments about "sleep" in the above example.[13]

According to the fuzzy trace theory, long-term memory stores two types of traces of past experiences: a verbatim trace, which records the exact details of an experience and fades rapidly, and a gist trace, which records abstract, schematic information and can last much longer. Over time, the verbatim trace becomes increasingly fuzzy, leading memory retrieval to rely heavily on the gist trace (Brainerd & Reyna, 2002; Koriat et al., 2000; Reyna et al., 2016). This phenomenon appears to underlie the DRM effect. The verbatim trace represents the exact occurrence of individual words, while the gist trace captures something broader, such as the common theme among the presented words. In recall and recognition tasks, the verbatim trace fades to such an extent that the memory system generates experiences based on the more accessible gist trace (Michaelian, 2016a; cf. Robins, 2016).[14]

Expanding on this explanation, when considering a specific gist trace, such as sleep-related words, the memory system is prone to generate a significant number of inaccurate experiences in addition to accurate ones. It is important to note that determining the exact ratio would require a sufficiently large number of memory recalls, often beyond the scope of typical DRM effect experiments. Moreover, there might be more sleep-related words than those initially tested. Given these considerations, it remains, at least, indeterminate whether accepting memory experiences generated this way at face value constitutes a reliable belief-forming process.

An additional step in establishing (P1) is to consider that the psychological mechanism proposed by the fuzzy trace theory may underlie not only the DRM

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[13] Researchers have developed variants of this paradigm to test visual scene memory and have obtained similar results (Miller & Gazzaniga, 1998).

[14] It is worth clarifying that the fuzzy trace theory does not suggest that memory experiences relying heavily on a verbatim trace are inherently more vivid than those relying heavily on a gist trace. Brainerd & Reyna (2002) and Reyna et al. (2016) actually discuss the generation of vivid experiences based on a gist trace. Furthermore, in studies related to the DRM effect, many participants recall specific details about the occurrence of the tested words. For the fuzzy trace theory to account for such findings, it must allow for gist traces to support vivid and specific remembering.

effect but also everyday memory experiences. This idea gains support from empirical findings that show a correlation between the DRM effect and autobiographical memory errors (Gallo, 2006, 2010; Puddifoot & Bortolotti, 2019). For example, in a study by Platt et al. (1998), subjects were requested to describe the circumstances in which they heard about the verdict of the O. J. Simpson trial on the day of the verdict and a few months later. Significant distortion was observed in their autobiographical memories. Later, the same subjects took part in a DRM effect experiment, and it was observed that individuals with more autobiographical memory errors were more susceptible to DRM memory errors. The correlation suggests that the process underlying the DRM effect may also play an essential role in everyday memory experiences.

If the psychological mechanism proposed by the fuzzy trace theory indeed underlies both the DRM effect and everyday memory experiences, then this indicates that the process responsible for generating accurate memory experiences in ordinary life may also give rise to numerous inaccurate ones. One piece of supporting evidence is the prevalence of memory disagreements. Consider how frequently we recollect past episodes or events differently from our family members, friends, and colleagues. Notably, in our daily experiences, the level of disparity in our recollections of the past is often much more pronounced than disagreements about our current perceptions. The presence of disagreement implies that at least one party's memory is inaccurate. This raises a serious concern regarding reliabilism, as it threatens to lead to wide-ranging skepticism by requiring reliability as a necessary condition for memory justification.

So far, I have illustrated the skeptical worry with the DRM effect and this effect's link to everyday memory experiences. To further bolster our objection, I examine three potential responses. First, one might highlight that we can generally distinguish between a person with a properly functioning episodic memory system and a clinical confabulator, whose episodic memory system is malfunctioning and allegedly unreliable. The difference between these two cases lends support to the reliability of ordinary episodic memory.[15]

In reply, I highlight that we do not judge a memory system as functioning abnormally solely based on its reliability. The reasonableness of recollected contents seems to be another important factor. Consider a clinical confabulator, patient SD, studied by Dalla Barba (1993; Michaelian, 2016a, 2016b). As a result of brain damage, SD frequently recalled extravagant details. For example, when questioned about his activities the previous day, SD claimed to have received a piece of meat as a prize for winning a running race, which he said was placed on his right knee. SD's memory content obviously defies common sense, and can serve as a criterion to identify abnormal confabulation. Besides, even if reliability is indeed a significant factor, the ability to distinguish between a normally functioning episodic memory system and a clinical confabulator primarily indicates that the former possesses an episodic memory system with relatively higher reliability, en-

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[15] Thanks to an anonymous referee for suggesting me to consider such a response.

abling the differentiation between the two cases. However, it does not necessarily imply that the reliability of the normally functioning memory system reaches a specific high threshold.

Second, one might argue, on a priori grounds, that memory experiences are factive, in the sense that we cannot episodically remember something unless the experience generated during memory retrieval is an accurate representation of one's past (Bernecker, 2008; Cheng & Werning, 2016; Debus, 2008). According to this way of individuating memory processes, inaccurate experiences fail to qualify as genuine memories. They do not negatively affect the reliability of belief-forming processes that take memory experiences at face value.

In reply, I present two main points. On the one hand, there may not be a substantive distinction between the processes that give rise to accurate experiences about the past and those that give rise to inaccurate ones. Consider the explanation proposed by the fuzzy trace theory for the DRM effect. The gist trace may represent that the presented words are closely related to "sleep." During retrieval, both an accurate experience about the word "bed" and an inaccurate experience about "sleep" are constructed based on this information. Since the processes leading to these experiences are analogous, it seems arbitrary to consider only one of them as a genuine memory.[16]

On the other hand, there is also an objection based on epistemological considerations. The current position implies that inaccurate experiences lack justificatory power because the belief-forming processes that accept these experiences are inherently unreliable. In the DRM effect, subjects lack prima facie justification to believe that "sleep" was originally presented. This can be counterintuitive, especially when compared to perceptual illusion. Despite being an inaccurate experience, the Müller-Lyer illusion may still provide prima facie justification to believe that the lines are of different lengths (Silins, 2021). Similarly, in the DRM effect, an inaccurate experience might still carry justificatory power.

A third potential response concedes that if belief-forming processes unquestionably accept memory experiences, then their reliability is in doubt. However, the response suggests the existence of metacognitive mechanisms that monitor the initial episodic memory retrieval. They endorse a retrieved content only when they determine that it accurately represents the past. If these mechanisms consistently excel at their screening role, then they can help ensure the reliability of memory-belief forming processes.

Michaelian (2016a) presents a response along these lines. He argues that metacognitive mechanisms face two related problems when deciding whether a retrieved content accurately represents the past (p. 170):

> **The process problem:** Is the first-order process one of episodic memory retrieval?

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[16] Michaelian (2016a) and Robins (2016) present arguments in a similar vein.

> **The source problem:** If the first-order process is one of episodic memory retrieval, then does the generated memory experience originate from a reliable source?[17]

To illustrate how metacognition solves these two problems, Michaelian appeals to empirical research on source monitoring. Memory experiences may not explicitly contain information about the origin of their contents. But the quality of sensory information within a memory experience, together with information about cognitive effort involved in the original episode, can assist these mechanisms in deciding whether a memory experience stems from a reliable source, such as a past perception (pp. 163-165). Moreover, Michaelian posits that some other features of the first-order processes, such as flexibility, intention, and spontaneity, help these metacognitive mechanisms evaluate whether a process qualifies as episodic memory retrieval (pp. 181-198).

It is challenging to see how alleged metacognitive monitoring can address the skeptical worry. First, according to this proposal, metacognitive monitoring relies on the features of a memory experience and the underlying retrieval process. Some of these features may already result from memory distortion, potentially leading to misinformation in assessments made by metacognitive mechanisms. Consider the source problem as an example. If the fuzzy trace theory is true, then the quality of sensory information within a memory experience, as well as information about cognitive effort during the original episode, may be constructed unreliably based on a gist trace.

Moreover, Michaelian concedes that the purported metacognitive monitoring is largely automatic and unconscious rather than deliberate and conscious, as we are seldom aware of such processing. In my second response, I highlight that evidence supporting the prevalence of memory distortion must already be thus filtered. For example, when you and your partner disagree about a past episode you experienced together, the retrieved contents must have already been assessed by your respective metacognitive mechanisms. If the pervasiveness of memory disagreements casts significant doubts on the reliability of forming beliefs by taking memory experiences at face value, then it also challenges the current dual-process proposal.[18]

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[17] Michaelian thinks that metacognitive mechanisms encounter the "process problem" because of his view that episodic memory retrieval constitutes a form of imagining. He suggests that it must be distinguished from other forms of imagining, such as past-oriented counterfactual thinking and future-oriented envisioning. Additionally, these mechanisms must discern whether the generated experience stems from a reliable source, such as a past perception, as opposed to a past imagining, to assess its accuracy. This is referred to as the "source problem."

[18] Mahr & Csibra (2018) raises another objection from an evolutionary perspective. They argue that if evolution favors reliable memory-belief forming processes, then it should primarily act on the processes themselves. It seems more costly to select additional monitoring mechanisms to compensate for the unreliability of first-order processes.

4   An Alternative, Two-Factor Theory

So far, we have seen the inadequacies of both dogmatism and reliabilism. Dogmatism fails to address the epistemic relevance of etiologies, making it unable to account for the lack of justificatory power of Ang's memory experience with respect to the belief that he wore a mask during a recent walk in the social distancing case. On the other hand, reliabilism, which imposes an undifferentiated requirement of reliability on memory-belief forming processes, runs the risk of engendering extensive skepticism. The deficiencies in these theories motivate us to develop an alternative theory, which is the focus of this section.

I begin by analyzing why Ang's memory experience lacks justificatory power.[19] I argue that this deficiency arises because the experience lacks a good evidential basis. A mere desire cannot serve as a suitable evidential basis, and Ang's memory experience is one he fabricates. This leads to an immediate worry: our proposal seems to imply that having a good evidential basis is a necessary condition for memory experiences to have justificatory power. However, the DRM effect shows that both accurate and inaccurate memory experiences can arise from gist traces, where the information contained within these gist traces may be too schematic to serve as an adequate evidential basis for the resulting memories.

To address this problem, I posit an epistemic distinction between memory experiences generated by personal-level mental processes during retrieval and those arising from entirely subpersonal-level processes:

> **The personal-level thesis:** If a memory experience is generated by a personal-level mental process during retrieval, then the experience can justify the relevant memory belief only if it has a good evidential basis.

> **The subpersonal-level thesis:** If a memory experience is generated by an entirely subpersonal-level process, then the experience can justify the relevant memory belief regardless of its evidential basis or the availability of a reliable memory-belief forming process.[20]

Some explanations are needed. First, although the personal/subpersonal distinction is assumed in many philosophical discussions, it is challenging to precisely

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[19] Earlier in section 2, I drew a comparison between the social distancing case and the preformationism case. I investigate the epistemology of cognitive penetration in Teng (2021), and my analysis of the justificatory power of memory experiences is built on that work.

[20] The theses presented here leave open whether the contents of a memory experience could have contribution from both personal- and entirely subpersonal-level mental processes. Regarding the justificatory power of these memory experiences, a more fine-grained analysis is needed. We might take justification to come in degrees and contend that if the relevant personal-level process lacks an adequate evidential basis, then the resulting memory experience is epistemically downgraded. It possesses less justificatory power compared to a memory experience solely arising from entirely subpersonal-level processes.

define what is meant by "personal/subpersonal-level" (Drayson, 2012, 2014; Westfall, 2022). Such a distinction initially pertains to psychological explanations (Dennett, 1969). Personal-level psychological explanations attribute mental states and processes to the entire individual, while subpersonal-level explanations attribute states and processes to specific functional subsystems. Examples of standard personal-level psychological explanations include folk-psychological explanations such as belief inferences and wishful thinking, which posits beliefs, desires, and transitions among these states. On the other hand, paradigmatic subpersonal-level explanations can be found in computational theories of depth or color perception, which propose a sequence of unconscious representations and processes within the perceptual system.

I follow this distinction, understanding personal-level mental states and processes as those involved in personal-level psychological explanations and subpersonal-level states and processes as those involved in subpersonal-level explanations. Some accounts propose that for every mental state attributed to the individual, there is a corresponding state attributed to a functional subsystem (Fodor, 1975; Lycan, 1987). I refrain from specifying the relationship between personal- and subpersonal-level explanations and use "an entirely subpersonal-level process" to designate subpersonal-level processes that lack counterpart personal-level mental processes. For example, the computational theories of depth or color perception mentioned above are entirely subpersonal-level processes.[21]

That being said, some mental states figure in both personal- and entirely subpersonal-level explanations. Memory experiences are like this. First, it is uncontroversial that memory experiences can serve as inputs for personal-level mental processes, such as forming beliefs based on them.

Personal-level mental processes need not be deliberate or conscious. Belief inferences and wishful thinking can occur spontaneously and unconsciously, yet we still attribute them to the individual. I point out that there exists a personal-level psychological explanation for the generation of Ang's memory experience in the social distancing case. His desire to keep a positive self-image prompts him to recall that he wore a mask during a recent walk. Despite the automatic and unconscious nature of this process, it can still be attributed to Ang. One important reason for this attribution lies in the fact that both the input (Ang's desire) and the output (Ang's memory experience) are typical personal-level mental states.

Last but not least, if the generation of a memory experience is explained by a sequence of unconscious representations and transitions within the memory system rather than being attributable to the individual, then it appears to be the outcome of a completely subpersonal-level process. Consider the DRM effect, in which the memory system is likely to construct memory experiences based on the more accessible gist trace of the presented words. If there is no synchronic influence

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[21] For further discussions on the relationship between personal- and subpersonal-level explanations, as well as the ambiguity in the use of the term "subpersonal-level" in the literature, see Drayson (2012, 2014).

from the subjects' personal-level mental states, then this process could be entirely subpersonal. One crucial reason for this is that the input is a memory trace, a subpersonal-level state posited by cognitive science to account for memory retention and decay.

After explaining what the personal/subpersonal distinction is, let's turn to its epistemic significance. Why is there an epistemic difference between memory experiences generated by personal-level mental processes and those arising from entirely subpersonal-level processes?

I present two arguments. The first focuses on the target of the evaluation of epistemic justification. When we determine that a belief is justified, what we mean is that the subject is justified in holding the belief. When we determine that an experience has justificatory power, what we mean is that the subject can justifiably rely on this experience to form certain beliefs. These epistemic evaluations are directed at the subject rather than a functional subsystem or a different subject. In this regard, we can compare the impact of a subpersonal-level process on the subject's justificatory standing to that of another subject's mental process. Neither an entirely subpersonal-level process nor a different subject's process reflects the subject's own epistemic perspective. Their qualities should not matter to whether the subject themselves is justified in believing a proposition or can justifiably rely on an experience in belief-formation and decision-making.

To further support this point, consider a belief inference that jumps to the conclusion. Compare a scenario in which you perform this inference with another scenario in which your partner does it and somehow implants their conclusion in your mind. I highlight that there is an epistemic difference between these two cases. While your own inference compromises the justificatory status and power of your inferred conclusion, your partner's inference does not obviously harm the justificatory status and power of the conclusion implanted in your mind by them. This contrast reveals that the attribution of a mental process to you, rather than a different subject, holds epistemic significance. Similarly, I suggest that when a mental process generates a memory experience, it affects the justificatory power of the experience only when the process is attributable to you, rather than entirely to a functional subsystem.

In response, one might argue that we should adopt an extended notion of the subject, including subpersonal-level processes involved in generating a memory experience as part of the subject's epistemic perspective. My second argument for the epistemic significance of the personal/subpersonal distinction engages with this suggestion. This argument highlights the troubling skeptical implication of permitting entirely subpersonal-level processes to influence the subject's justificatory standing. As discussed in section 3, the fuzzy trace theory underlies not only the DRM effect but also memory experiences in everyday life. These processes give rise to both accurate and inaccurate memory experiences, leaving uncertainty about whether taking memory experiences at face value would yield a high proportion of true beliefs relative to false ones.

On the other hand, the processes might not meet the standards of logic and rationality. Consider the scenario in which subjects were presented with words closely related to "sleep." In recall and recognition tasks, the verbatim trace fades to such an extent that the memory system relies on the more accessible gist trace, which signifies the association with "sleep." With numerous words fitting this description, even if the subjects recollect words from the original list, such as "bed," the gist trace might not offer sufficient support for the relevant memory experiences. Such retrieval processes can be likened to "jumping to conclusions." If the qualities of entirely subpersonal-level processes affect the justificatory power of memory experiences, then it could lead to widespread skepticism about memorial justification, which, however, is unacceptable. This shows the epistemic significance of the personal/subpersonal distinction from another perspective.

Now that we have delved deeper into the personal/subpersonal distinction as well as its epistemic significance, let's revisit the social distancing case and the DRM effect. I suggest that we apply our personal-level and subpersonal-level theses to handle them, respectively. In the former case, Ang's memory experience that he wore a mask during a recent walk results from a personal-level mental process, and needs a good evidential basis to have justificatory power. However, his desire to keep a positive self-image fails to serve as a suitable evidential basis. This explains why his memory experience fails to provide him with justification for the relevant memory belief. I say that Ang's memory experience is one Ang *fabricates* for himself, and understand *fabrication* as follows:

> **Fabrication:** If a memory experience is generated by a personal-level mental process during retrieval but lacks a good evidential basis, then it constitutes a fabricated experience and does not justify the relevant memory belief.

In the DRM effect, as well as other scenarios in which memory experiences arise from entirely subpersonal-level processes, even if they lack a proper evidential basis or reliability, it need not hurt their justificatory power. I say that these experiences are *given* to the subjects, and characterize *givenness* as follows:

> **Givenness:** If a memory experience is generated by an entirely subpersonal-level process, then it is given to us and can justify the relevant memory belief regardless of its evidential basis or the availability of a reliable memory-belief forming process.

So far, I have proposed our two-factor theory concerning the justificatory power of memory experiences. An important difference between our theory and dogmatism lies in our acknowledgement of the epistemic relevance of personal-level etiologies, which dogmatism does not consider. Besides, we differ from reliabilism in rejecting the significance of entirely subpersonal-level etiologies. Reliabilism treats all belief-forming processes alike and imposes a blanket requirement for reliability. What

emerges from our discussion is a fresh perspective on what is epistemically given to us and what we construct in the realm of memory. In the remainder of this section, I offer four additional clarifications for our theory.

First, the personal-level thesis leaves room for the existence of memory experiences that meet the requirement for a good evidential basis. Consider another extensively studied phenomenon known as the "misinformation effect." In one of the early experiments, Loftus and Palmer (1974) showed a movie of a car accident to subjects and later asked misleading questions. When the subjects heard that the cars "smashed" into each other, many of them remembered the vehicles as moving much faster than their actual speeds. This phenomenon can be explained at the personal level: the information the subjects received influenced their memory experiences. Even if such information is misleading, depending on one's theory of testimonial justification, the memory experience of the subjects might still be considered as drawing from appropriate evidence, potentially possessing justificatory power.[22]

Second, neither the personal-level nor the subpersonal-level thesis suggests a sufficient condition. Regarding each of these theses, there might be additional necessary conditions for memory experiences to have justificatory power. Consider the clinical confabulator SD again, who, as a result of brain damage, remembers receiving a piece of meat as a prize for winning a running race and claims that it was placed on his right knee. Suppose that such a memory experience is generated by an entirely subpersonal-level process. Our subpersonal-level thesis does not imply that SD's memory experience provides him with justification for the relevant memory belief. Normal functionality might be a precondition for any epistemic evaluation to be applicable. However, given that SD's memory system does not function properly, neither his memory experiences nor the memory beliefs formed based on them should be subject to the assessment of epistemic justification.[23]

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[22] Michaelian (2016a) argues that within reliabilism the misinformation effect need not diminish the justificatory power of memory experiences. On the one hand, he appeals to empirical studies on deception to support the existence of an "honesty bias" in human testifiers (pp. 142-144). On the other hand, he further cites studies on deception detection to propose that recipients are sensitive to testifiers' competence (p. 144). Combining these points, Michaelian suggests that the misinformation effect falls under a broader "information effect," which contributes to the formation of more true than false memory beliefs.

I find this argument unconvincing. First, even if testifiers tend to be honest, this does not guarantee the accuracy of the information, especially when it pertains to the past. It is possible that honest testimony is based on false memories. The transition from honesty to truth appears to involve circular reasoning, as it presupposes the reliability of testifiers' memories.

Moreover, the point about sensitivity to testifiers' competence should be treated with caution. Most cited studies seem to involve face-to-face interactions between recipients and testifiers. However, it is important to consider how the spread of fake news and other forms of misinformation on online platforms has posed a global concern. It is less evident that we can reliably filter such misinformation and prevent it from influencing our memories.

[23] Thanks to an anonymous referee for prompting me to provide further clarification on this matter.

My final two clarifications are concerned about the personal/subpersonal distinction. Third, while memory recalls can be initiated by intentions, this does not necessarily indicate that the retrieval processes happen at the personal level. To illustrate this point, consider that your intention to recall your trip to Bali might leave it to your memory system to determine what specific experiences to generate. If your memory system relies solely on verbatim and gist traces, such as memories of the beautiful beach scenery and fun activities, then entirely subpersonal-level explanations can account for how your memory experiences are generated. This scenario might be compared with intention-guided visual search. For example, you may intend to locate your cat, leading you to search the room. If you later find her under the tea table, your perceptual experiences need not be considered as being cognitively penetrated by your intention.

Fourth, personal-level mental states might exert an influence on memory experiences long before retrieval processes take place. As mentioned in section 2, these personal-level states can impact how the original episodes are encoded into long-term memories (Alba & Hasher, 1983). In my treatment of this type of diachronic influence, I lean toward the idea that it might be less relevant to the personal/subpersonal nature of retrieval processes. When memory experiences are constructed solely based on memory traces, without any synchronic impact from personal-level states, it becomes somewhat implausible to attribute the retrieval processes to the subject. The personal-level states from earlier stages appear to no longer be in effect. For comparison, think about diachronic influence involved in perceptual learning. Once expertise is developed, the personal-level cognitive states that were initially crucial for perceptual training may no longer play a role in one's perceptions.

5   Concluding Remarks

In this paper, I began by critiquing two prominent theories in the literature regarding the justificatory power of memory experiences: dogmatism and reliabilism. Following that, I proposed and defended an epistemic distinction between memory experiences generated by personal-level mental processes and those arising from entirely subpersonal-level processes. It serves as the foundation for our alternative, two-part theory. Although the theory does not address every aspect, it marks a significant advancement.

One issue that I did not discuss is the interaction between memorial justification and imaginative justification. In light of empirical evidence about memory construction, some psychologists and philosophers suggest that episodic memory retrieval is a form of sensory imagining (De Brigard, 2014b; Michaelian, 2016a; Schacter & Addis, 2007). On the other hand, many epistemologists think that for imaginings to justify non-modal beliefs about the external world, they must have a good evidential basis (Kind, 2016, 2018; Myers, 2021; Teng, 2018). For example, when using sensory imagining to determine whether a couch fits into your living

room, it should be based on information about the appearance of both the couch and your living room. Otherwise, the imagining would not provide you with justification for the relevant belief.

One implication of our theory for these discussions is that if episodic memories are a form of sensory imagining, then the requirement for a good evidential basis might not apply to all imaginings. Some of them are generated by entirely subpersonal-level processes and are exempt from this requirement. This consequence could motivate the previously mentioned epistemologists to restrict their view to sensory imaginings that stem from entirely personal-level processes. Instead, they might question whether all episodic memory retrieval should be classified as imaginings.

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