Title: Remembering and relearning: Against exclusionism

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Abstract: Many philosophers endorse "exclusionism", the view that no instance of relearning qualifies as a case of genuine remembering, and vice versa. Appealing to simulationist, distributed causalist, and trace minimalist theories of remembering, I develop three conditional arguments against exclusionism. First, if simulationism is right to hold that some cases of remembering involve reliance on post-event testimonial information, then remembering does not exclude relearning. Second, if distributed causalism is right to hold that memory traces are promiscuous, then remembering does not exclude relearning. Finally, if trace minimalism is right to hold that vicarious experiences sometimes produce the minimal traces that ground remembering, then remembering does not exclude relearning. While advocates of these theories might incorporate additional conditions designed to accommodate exclusionism, the only reason they can appeal to in favor of doing so is intuition: neither the fundamental components of the theories nor the empirical results on which they are based provide a reason to endorse exclusionism. An investigation of exclusionism thus raises metaphilosophical questions, so far overlooked in philosophy of memory, about the appropriate role of intuition in theorizing about remembering.

Keywords: Causal theory of memory; simulation theory of memory; distributed memory traces; trace minimalism; vicarious memory.

1 Introduction

Remembering is usually held to be distinct from both imagining and relearning. The remembering-imagining distinction has been a topic of heated discussion in the continuism-discontinuism debate (Michaelian et al. 2020). The remembering-relearning distinction is, in contrast, a much less discussed topic. Relearning, as the term is used in the philosophy of memory literature, occurs when a subject acquires information about an event through experience, forgets about the event, reacquires information about the same event from an external source, forgets the episode of information reacquisition, and then forms an apparent memory of the event in question. Despite the fact that the concept of relearning is regularly invoked by philosophers of memory, the literature so far includes no sustained discussion of relearning.[1] Nevertheless, many philosophers (e.g., Bernecker 2010; Debus 2017; Langland-Hassan 2022; Martin and Deutscher 1966; Michaelian 2016a; Robins 2017a, 2017b) more or less explicitly endorse the view to which I will refer as "exclusionism". According to exclusionism, no instance of relearning qualifies as a case of genuine remembering, and vice versa. In other words, remembering and relearning are mutually exclusive.

Advocates of exclusionism argue that there are intuitively significant differences between remembering and relearning. As Robins puts it, the distinction between remembering and relearning "is the distinction between eyewitness testimony and hearsay, between a perfect exam that results from studying and one that relies on a notecard tucked into a shirtsleeve" (2017b: 83). Though Robins' suggestion—and exclusionism itself—might appear at first glance to be almost trivial, I argue in this paper that exclusionism is in fact a substantive view that, because it does not follow from leading theories of remembering, is in need of closer examination.

[1] A recent exception is Lai (2024), which uses the gradualist framework in epistemology to study the relationship between remembering and relearning.

The theories on which I focus are simulationism (Michaelian 2016b) and two versions of causalism: distributed causalism (Sutton and O'Brien 2023), and trace minimalism (Werning 2020). I focus on simulationism and causalism simply because they are the main going theories in contemporary metaphysics of memory.[2] Simulationism, which is directly inspired by empirical memory research, has attracted attention in recent debates not only because it contradicts the long-dominant causal theory of memory but also because it gives rise to new questions about the relationship between memory and episodic future thought. While a variety of causal theories are available (Michaelian and Robins 2018), distributed causalism and trace minimalism have attracted particular attention in recent debates, as both theories draw on empirical research with the aim of providing an account of remembering that is naturalistically respectable and that enjoys the same level of intuitive support as older forms of causalism. Distributed causalists and trace minimalists agree that remembering is to be explained in terms of appropriate causation, but the disagreements between them are real and have given rise to new questions about the nature of memory traces and the kind of information that traces contain.

In this paper, I argue for two claims. First, if any one of these leading naturalistic theories of memory is right, then we have reason to reject exclusionism. Second, although there are ways of revising these theories so as to accommodate exclusionism, neither their fundamental components nor the bodies of evidence on which they rely entail exclusionism. The structure of the paper is as follows. Section 2 provides background on the forms of remembering and relearning that will matter here, introduces examples of relearning, and

[2] In addition to causal and simulation theories of remembering, there are empiricist, epistemic, and functionalist theories available in the philosophical literature. While empiricist and epistemic theories have been popular in the past, these theories have few contemporary defenders. The functionalist theory was recently proposed by Fernández (2019), and the contribution that the theory makes to the metaphysics of memory is a topic of ongoing debate (e.g., Robins 2021). While empiricist, epistemic, and functionalist theories agree with the simulation theory that remembering is not to be explained in causal terms, contemporary debates in the metaphysics of memory have focused on the disagreement between advocates of the causal and simulation theories.

reviews the main motivation for exclusionism. Section 3 explains why exclusionism is crucial for classical versions of causalism. The following three sections develop conditional arguments designed to cast doubt on exclusionism. Section 4 argues that, if simulationism is right to hold that some cases of remembering involve reliance on post-event testimonial information, then remembering does not exclude relearning. Section 5 argues that, if distributed causalism is right to hold that memory traces are promiscuous, then remembering does not exclude relearning. Section 6 argues that, if trace minimalism is right to hold that vicarious experiences sometimes produce the minimal traces that cause remembering, then remembering does not exclude relearning. These three sections also argue that, while advocates of these theories might incorporate additional conditions designed to accommodate exclusionism, the only reason in favor of doing so to which they can appeal is intuition. An investigation of exclusionism thus raises metaphilosophical questions, so far overlooked in philosophy of memory, about the appropriate role of intuition in naturalistic theorizing about remembering. Section 7 presents those questions and sketches some possible ways to address them. Section 8 concludes.

2 Exclusionism

Discussions of exclusionism focus on cases of remembering, which typically involve mental imagery of personally experienced events accompanied by a rich phenomenology commonly described in terms of feelings of pastness and familiarity (Kind 2021; Perrin and Sant'Anna 2022).[3] Relearning, as the term is used in the philosophical literature, occurs when a subject acquires information about an event through experience, forgets about the event, reacquires information about the same event from an external source, forgets the episode of information reacquisition, and then forms an apparent memory of the event in question. In a case of

[3] These cases contrast with cases in which one recalls propositions such as "Canberra is the capital of Australia" or "$E = mc^2$". While these cases paradigmatically rely on semantic memory, cases of remembering paradigmatically rely on episodic memory. For recent discussions of the semantic-episodic distinction introduced by Tulving (1972), see Andonovski (2023) and Aronowitz (forthcoming).

relearning, the subject ends up apparently remembering an event experienced in the past and may even entertain a mental image of it accompanied by feelings of pastness and familiarity. According to exclusionism, such a subject does not genuinely remember the event.

Before discussing the motivation for exclusionism, let me first introduce some examples of relearning. The two most discussed kinds of relearning are what one may call "Martin and Deutscher-style relearning" and "Robins-style relearning". Here is an example of the former.

> **Kent case:** "[Kent] has told his friend Gray what he saw of an accident in which he was involved. Kent has a second accident in which he gets a blow on the head which destroys all memory of a period in his past, including the time at which the first accident occurred. When Gray finds that Kent can no longer remember the first accident, he tells him those details which Kent had told Gray in the period between the first and second accidents. After a little while Kent forgets that anyone has told him about the first accident, but still remembers what he was told by Gray" (Martin and Deutscher 1966: 180).

In Martin and Deutscher-style relearning, a subject S acquires information about an event e through experience at t_1; S transmits the information about e to an external source at t_2; S forgets everything about e at t_3; S reacquires information about e at t_4 from the external source with which S interacted at t_2; at t_5, S forgets that the episode of information reacquisition occurred at t_4 but retains the information about e; and, at t_6, S apparently remembers e.

Here is an example of Robins-style relearning (adapted from Robins 2017a).

> **Pete-Peggy case:** Pete rode a rollercoaster alongside his friend Peggy. A few months later, Pete suffered an accident, the result of which was retrograde amnesia. He could not remember a variety of events from his past, including riding the rollercoaster with Peggy. At some later point, Peggy told Pete everything about the rollercoaster ride

from her own perspective. Today, Pete forgets being told about the rollercoaster ride but retains the information shared by Peggy and claims to remember the event in question.

In Robins-style relearning, two subjects, S_1 and S_2, acquire information about e through experience at t_1; S_1 forgets everything about e at t_2; S_1 reacquires information about e at t_3 via the testimony of S_2 about his own experience of e; at t_4, S_1 forgets that the episode of information reacquisition occurred at t_3 but retains the information about e; and, at t_5, S_1 apparently remembers e.[4]

Notwithstanding structural differences between Martin and Deutscher-style relearning and Robins-style relearning, they are similar in three key respects. First, an external source provides the information that the subject uses to form an apparent memory. Second, although capable of forming apparent memories of forgotten events, the subject forgets the episode of information reacquisition.[5] Third, the relearning subject initially forgets *all* of the information that he acquired through his experience of the event.

Now that I have characterized relearning and remembering, let me present the main motivation for exclusionism. Some take it to be manifestly obvious that remembering and relearning are fundamentally different. When discussing the Kent case, for instance, philosophers tend to claim, for example, that "[i]t is clear that [Kent] does not remember the accident itself" (Martin and Deutscher 1966: 180), that "[i]ntuitively, Kent does not remember the accident" (Langland-Hassan 2022: 95), or that "(…) it seems eminently plausible to hold

[4] It is possible to generate a third form of relearning by combining Martin and Deutscher-style relearning and Robins-style relearning. The structure of this form of relearning will be the following: at t_1, S_1 and S_2 acquire information about e through experience; at t_2, S_1 tells S_2 about e; at t_3, S_1 forgets all about e; at t_4, S_2 tells S_1 all about e, including the information S_2 acquired through the experience of e and the information S_2 acquired through S_1's previous testimony about e; at t_5, S_1 forgets being told about e but retains the reacquired information about e; at t_6, S_1 apparently remembers e.

[5] Bernecker (2017) argues that forgetting the episode of information reacquisition amounts to a source-monitoring error. However, there is no consensus on whether relearning is an error and, if so, what kind of error. Since addressing this issue is beyond the scope of this paper, I will set it aside. For a view of relearning as a memory error, see Robins (2020). For an overview of the memory error debate, see Michaelian (2023b).

that in the scenario as described, Kent does *not* remember the first accident now" (Debus 2017: 67). These remarks suggest that the motivation for exclusionism rests on an appeal to intuition. Relearning cases are meant, as Robins puts it, "(…) to prod the intuition that relearning is a way of producing accurate representations of previously acquired information that is distinct from remembering" (2017a: 4).[6]

While the proper role of intuition in philosophy is a topic of heated debate, philosophers have traditionally treated intuitions as having a special epistemic status.[7] As Tobia puts it, "there is a kind of prima facie permissibility in offering intuitions in philosophical argument (…) without saying any more" (2015: 582). The idea, in brief, is that the epistemic status of intuitions is special in that intuitions are necessarily true and self-evidencing. If this is right, then one can provide support for a philosophical position by merely invoking suitable intuitions. Insofar as intuition is the main motivation that philosophers have so far provided for exclusionism, existing discussions of relearning take something like this understanding of the role of intuition for granted.

The "exclusionist intuition", as I will call it, has been influential in philosophical theorizing about remembering, and philosophers of memory have sought to accommodate it in their theories. In particular, advocates of classical versions of causalism have emphasized the importance of the exclusionist intuition for reasons that will become clear in the following section. Furthermore, sections 3-6 will lend support to two claims. On the one hand, appealing to the exclusionist intuition is, unsurprisingly, not at odds with classical versions of causalism. On the other hand, because contemporary philosophers of memory have shifted from an intuition-based approach to a naturalistic approach, appealing to intuition in order to accommodate exclusionism is at odds with more recent theories.

[6] Because subjects can acquire accurate or inaccurate information, forget it, and acquire it again, relearning can be veridical or falsidical (Michaelian 2016a). For the purposes of this paper, I set aside falsidical relearning and focus on veridical relearning.

[7] See, e.g., Bealer (1998); for skeptical views on the special epistemic status of intuitions, see Cappelen (2012).

3 Causalist roots of exclusionism

While the idea that a theory enjoys prima facie support when it accommodates relevant intuitions (Pust 2019) has been criticized on the grounds that intuitions can be unreliable (e.g., Alexander et al. 2010), philosophers of memory seem to take that idea for granted in their attempts to accommodate the exclusionist intuition. Indeed, this attempt cuts across major differences in philosophy of memory, as advocates of both causalism and simulationism have attempted to accommodate the intuition, with advocates of causalism being the first to make room in their theories for it.

Advocates of classical versions of causalism (Martin and Deutscher 1966; Bernecker 2010) defend their theories by appealing to a series of thought experiments that are supposed to prod intuitions about the nature of remembering. Two kinds of thought experiment are important here. The first involves suggestibility. Suppose, for example, that, at t_1, a subject S_1 witnesses a car accident; at t_2, S_1 forgets all about the accident; at t_3, a second subject S_2, who has no knowledge of the accident, suggests to S_1 that he witnessed a car accident in a certain place at a certain time and, by sheer coincidence, all the details of that accident are accurate with respect to the witnessed accident; the suggestion of S_2 works and, at t_4, S_1 produces an accurate representation of the accident, claiming to remember it. Cases of this sort are supposed to prod the intuition that S_1 does not genuinely remember the accident. According to classical causalists, the salient feature of this case is that the experience of S_1 and his current representation of the accident are not causally connected. The moral, classical causalists suggest, is that a causal connection between a current representation and a past experience of an event is necessary for genuine remembering.

The second kind of thought experiment involves relearning. Importantly, both Martin and Deutscher-style relearning and Robins-style relearning involve a causal connection between a subject's current representation and a past experience of an event. Intuition,

however, is supposed to suggest that relearning subjects do not genuinely remember the relevant events. According to classical causalists, the salient feature of these cases is that they involve a sort of deviant causal connection. The moral, classical causalists suggest, is that not just any causal condition is sufficient for remembering: an "appropriate causation" condition is required.

> (AC) For a subject to genuinely remember a past event, it is necessary that there be a causal connection between the subject's current representation and a past experience of that event that is sustained by a memory trace originating in that experience.

(AC) does justice to the exclusionist intuition by ruling out deviant causation. While genuine remembering always involves, from a causalist standpoint, a trace originating in the experience of the relevant event that has causal influence on the production of a representation of that event, relearning presupposes that traces of this sort are forgotten.

Causalists do indeed need to rule out relearning—not only in order to accommodate the exclusionist intuition but also because one of the basic goals of a causal theory of memory (as of a causal theory in any other field) is to rule out deviant causation (Bernecker 2010; Debus 2017). This goes not only for classical causalism but also for recent naturalistic versions of causalism, including distributed causalism and trace minimalism. I will, however, argue in sections 5 and 6 that exclusionism does not follow from these theories. If my arguments are on the right track, then the only factor to which they can appeal in order to justify exclusionism is intuition. Advocates of these theories thus owe us an argument for the legitimacy of appealing to intuition in the context of a naturalistic account of remembering. If they opt, instead, to give up on accommodating the exclusionist intuition, thus granting that cases of relearning might qualify as cases of remembering, then they will face a problem internal to non-exclusionist causal theories, for this will blur the distinction between deviant and appropriate causation.

This brief discussion of the causalist roots of the exclusionist intuition has brought two points to light. First, since classical causalism provides an intuition-based account of remembering, an appeal to the exclusionist intuition is not at odds with the general approach of the theory. Second, causalism requires ruling out relearning as one of the basic goals of a causal theory is to rule out deviant causation. In the next three sections, I argue that exclusionism does not follow from simulationism, distributed causalism, or trace minimalism. This would not seem to be a major issue for simulationism, given that the notion of deviant causation plays no role in the theory. It would, however, seem to be a significant problem for distributed causalism and trace minimalism qua causal theories, given that those theories are supposed to make sense of the distinction between appropriate and deviant causation.

4 Exclusionism and simulationism

Turning from causalism to simulationism, note that, while classical causalism results from an intuition-based analysis of cases of apparent memory, simulationism is a naturalistic theory that takes evidence from the memory sciences as its starting point. Building on two bodies of evidence, simulationism denies the necessity of (AC) for remembering and thus suggests a radical departure from causalism. On the one hand, research on memory as a form of mental time travel (Addis 2020) suggests that remembering and episodic thinking—such as episodic future thinking and episodic counterfactual thinking—are underwritten by the same neurocognitive system. Simulationists argue that, just as other forms of episodic thinking do not require that a trace originating in the subject's experience of the represented event have causal influence on the relevant process, remembering likewise does not require this. On the other hand, research on the constructive character of memory suggests that "memory is not a literal reproduction of the past, but rather is a constructive process in which bits and pieces of information from various sources are pulled together" (Schacter and Addis 2007: 773). Simulationists argue that, in remembering, a subject can draw on information originating in

experience of a variety of events and on non-experiential information, such as post-event testimonial information, to reconstruct memory representations of events. Simulationists reason that, since remembering can involve *some* non-experiential information, there is no non-arbitrary reason to deny that remembering can *only* involve non-experiential information.

Together, these bodies of evidence seem to suggest that (AC) is unnecessary for remembering. It is worth highlighting, however, that simulationists do not accept that every case of incorporation of non-experiential information into a memory representation will count as a case of genuine remembering. According to simulationism, remembering requires satisfaction of a "proper function" condition (Michaelian 2016b).

> (PF) For a subject to genuinely remember a past event, it is necessary that the subject's representation of the event be produced by a properly functioning and hence reliable episodic construction system aiming to produce a representation of an event belonging to the subject's personal past.

While spelling out "proper function" is an important task for simulationists (Schwartz 2020), Michaelian holds that, roughly speaking, the relevant system functions properly when it tends to produce accurate representations.

Given the naturalistic orientation of the theory, one may expect that simulationism is not in the business of accommodating intuitions about cases of apparent memory. Indeed, Michaelian, one of the main advocates of simulationism,[8] has recently acknowledged that "while the theory was not designed *not* to respect our intuitions about particular cases of apparent memory, it was emphatically not designed *to* respect those intuitions" (2024: 1179). Nevertheless, in an older paper, Michaelian (2016a) also argues that simulationism should

[8] De Brigard (2014a, forthcoming) also takes himself to be an advocate of simulationism. While De Brigard argues that remembering is a form of hypothetical episodic thinking, he denies that genuine remembering requires satisfaction of (PF) and argues that a causal connection sustained by a memory trace is indispensable in an account of remembering. Since De Brigard's simulationism aligns with causalism's general spirit and Michaelian's simulationism contradicts causalism, I focus here on Michaelian's simulationism.

exclude cases of relearning because they intuitively constitute a form of unsuccessful remembering. Simulationists cannot, of course, appeal to (AC) to exclude relearning. Michaelian therefore introduces an "internality" condition on remembering.

> (I) For a subject to genuinely remember an event, it is necessary not only that the subject's representation be produced by a properly functioning episodic construction system but also that the subject contribute at least some content to the representation.

Since, in a relearning case, the subject depends entirely on an external source to form a representation of the forgotten event, he does not fulfill (I). Simulationism thus initially accommodates the exclusionist intuition by introducing (I). While McCarroll (2020) has objected that (I) does not successfully exclude relearning because relearned information can be stored for later use at retrieval, Michaelian has abandoned (I) in recent work for the more general reason that accommodating intuitions is at odds with the naturalistic orientation of simulationism (Michaelian 2021, 2023b).

Given the lack of systematic discussion of the remembering-relearning distinction, it is unclear what a simulationist perspective on relearning should look like. There are at least three options available to simulationists. First, simulationists might hold on to (I) in an attempt to accommodate the exclusionist intuition, in which case both a response to McCarroll's objection and a naturalistic justification for this strategy will be in order. Second, simulationists might attempt to identify a different means of accommodating the exclusionist intuition, in which case, again, a naturalistic justification for this strategy will be in order. Third, simulationists might simply give up on attempting to accommodate the exclusionist intuition and admit that a consequence of their theory is that one should reject exclusionism. I argue here that exclusionism does not follow from simulationism. If my argument is on the right track, the third of these options will be the most natural fit for simulationism.

If simulationism is right, then, as long as a case of relearning fulfills (PF), it counts as remembering. Because nothing prevents a case of relearning from involving a subject who has a properly functioning episodic construction system, simulationists must answer this question in the negative. From a simulationist standpoint, cases of "reliable relearning" are simply cases in which a properly functioning episodic construction system incorporates post-event testimonial information to construct an accurate memory. Indeed, reliable relearning will, from the simulationist standpoint, simply be one of the ways in which constructive remembering can occur.

Constructive remembering comes in a variety of forms. One of these forms is, arguably, illustrated by certain lost-in-the-mall (LITM) cases. The structure of the cases in question is the following: at t_1, subjects S_1 and S_2 acquire accurate information about an event e through experience; at t_2, S_1 forgets everything about e; at t_3, S_1 reacquires accurate information about e from S_2; at t_4, S_1 seems to accurately remember e. In a case of this sort, accurate post-event testimonial information is incorporated into the subject's memory of the event.[9] Again, if the subject's episodic construction system functions properly, simulationists should consider the case to be an instance of genuine remembering. Indeed, Michaelian (2023b) has granted as much.

Notwithstanding the minor structural differences between LITM cases and relearning cases, my suggestion is that the simulationist should view them as being very similar to each other. If LITM cases involve subjects with properly functioning episodic construction systems, the simulationist will say that nothing prevents them from qualifying as instances of genuine remembering. It is unclear why the simulationist should not adopt a similar view of relearning. In both LITM cases and relearning cases, the subject's system can function

[9] While these are veridical LITM cases, LITM cases in the psychological literature are typically falsidical. A psychologist provides a participant with inaccurate information (e.g., that he was lost in the mall as a child) by using certain suggestibility methods. Later, the participant seems to remember the inaccurate information through constructive processes occurring at retrieval. For a classic study, see Loftus and Pickrell (1995).

properly and can produce an accurate representation; it just happens that the system draws on post-event testimonial information due to the constructive character of its operations.[10] If simulationism is right, then genuine remembering can occur not only in LITM cases but also in relearning cases.

A worry that might arise here is that, although simulationism does not entail exclusionism, there is nothing to prevent a simulationist from adding conditions to the theory in order to make room for exclusionism. After all, the (I) condition introduced by Michaelian (2016a) in order to accommodate exclusionism is not incompatible with (PF). This condition, however, does not follow from the bodies of evidence to which simulationists appeal. Thus, while a simulationist might add a condition to the theory in order to make room for exclusionism, the only apparent reason in favor of doing so is intuition. As mentioned above, this strategy is at odds with the naturalistic orientation of simulationism simply because it gives too much weight to a priori considerations in theory construction. To the extent that simulationists determine what their account of remembering should look like by relying on the exclusionist intuition, their account is no longer a naturalistic account.

A more pressing worry might be that there is something wrong with relearners' episodic construction systems that prevents them from fulfilling (PF). The cases of relearning presented above involve subjects forgetting information due to a brain injury (as in the Kent case) or due to retrograde amnesia (as in the Pete-Peggy case). LITM cases, in contrast,

[10] While a comparative study of LITM and relearning cases is beyond the scope of this paper, it is worth emphasizing three similarities and one potential, yet important, dissimilarity between veridical LITM cases and veridical relearning cases. Both cases depict subjects acquiring accurate information about an event through experience, forgetting the information in question, and reacquiring accurate information about the relevant event from an external source. A dissimilarity between these cases arises if the subjects involved in veridical LITM cases do not forget the episode of information reacquisition. As mentioned in section 2, forgetting the episode of information reacquisition—while retaining the information about the event—is an important feature of the cases of relearning discussed in the philosophical literature. However, even if LITM and relearning cases ultimately differ in this respect, my point that simulationists should be open to counting both as remembering cases still holds. For these cases can involve subjects with reliable episodic construction systems drawing on post-event information and constructive retrieval processes to produce an accurate representation of an event. I thank an anonymous reviewer for insisting on clarifying this issue.

involve healthy subjects incorporating testimonial information into the memories of the relevant events. The worry is thus that, since it is unclear whether the systems of brain injury patients and amnesiacs are reliable, simulationists should not consider relearning to be compatible with remembering.

Whether brain injury patients and amnesiacs have properly functioning systems is an empirical question. Given their naturalistic orientation, simulationists might therefore suspend their judgement about cases of relearning involving subjects with brain injuries and memory impairments until the relevant scientific work is done. However, simulationists might also consider "healthy relearning" to be a candidate for fulfilling (PF) and, therefore, for qualifying as a form of genuine remembering. Healthy relearning would be instantiated by cases in which subjects acquire information about an event through experience, forget everything about it through natural means, reacquire information about the event from an external source, forget the episode of information reacquisition through natural means, and form an accurate apparent memory of the event.

Some early childhood memories, for example, may be products of healthy relearning. A subject might, for instance, report an event experienced when he was 3 years old.[11] Due to natural processes related to childhood amnesia, he might have forgotten the information that he acquired about this event through his experience. As reported in the psychological literature, however, parents constantly engage their children in conversations about the past (Haden et al. 2018). It is thus possible that the source of the information contained in the subject's apparent memory is testimony from his parents. Moreover, the subject might also have forgotten that his parents told him about the event due to some non-pathological form of source forgetting. Because cases of this sort involve neither memory impairments nor brain injuries and mirror the structure of relearning cases, they may provide a useful means of

[11] The consensus in the psychological literature is that adults' age of earliest memories is between 2.5 and 3.5 years. For a review of the literature on early childhood memories, see Peterson (2021).

addressing the present worry. Further work, however, is required to clarify the distinction between healthy and unhealthy relearning.

5 Exclusionism and distributed causalism

I will now look at whether exclusionism follows from distributed causalism. I will argue that exclusionism does not follow from this theory because of its commitment to "trace promiscuity", the view, popular in the sciences of memory, that a given memory trace can be shaped by multiple experiences and can cause the memories of multiple events (Sutton 1998; Sutton and O'Brien 2023).[12]

Distributed causalists agree with simulationists regarding the inability of classical causalism to make sense of the constructive character of remembering. But distributed causalists, unlike simulationists, hold that (AC) is necessary for remembering. In order to make sense of the constructive character of remembering while preserving (AC), distributed causalists develop an account of memory traces inspired by the sciences of memory and meant to accommodate the constructive character of remembering.

Broadly speaking, traces are mental entities that bear information deriving from past experience and that have causal influence on the production of memories (De Brigard 2014b; Robins 2017b). While Martin and Deutscher conceived of traces as discrete entities resulting from the experience of an event and enabling one to remember only that event, distributed causalists suggest instead that traces are distributed entities that result from the experience of multiple events and that enable one to remember multiple events. Therefore, distributed causalists deny Martin and Deutscher's claim that traces underwrite unique causal

[12] In this section, I use the terms "trace promiscuity" and "trace monogamy" coined by Langland-Hassan (2022). It is worth noting that I do not mean to suggest here that Langland-Hassan's theory of remembering, the "prop theory", is a form of distributed causalism. While both the prop theory and distributed causalism endorse trace promiscuity, these theories spell appropriate causation out in different terms. Clarifying the relationship between the prop theory and distributed causalism is a task that I leave for future research.

connections between the past experience of a particular event and the current memory of that event.

Inspired by connectionist models, distributed causalists argue that memory is a complex informational network whose nodes correspond to event features that a subject has experienced. On this view, memory traces are distributed patterns of connections between the nodes of the network. Traces are, to put it simply, distributed patterns of event features. The connection strength between nodes depends on the frequency with which the event features to which the nodes correspond to co-occur. Given that information is stored superpositionally in the network, memories of events with similar features will be produced by overlapping patterns. The distributed view of traces thus allows a given trace to underwrite the reconstruction of multiple memories of similar events. For example, experiences of similar events can reinforce the connections of a pattern including features like colleagues, talks, coffee, and dinner and this pattern might in turn cause a memory of a conference and a memory of a summer school.[13]

Although the distributed view of traces is meant to make sense of the constructive character of remembering while accounting for remembering in causal terms, it is unclear what a distributed version of (AC) might look like. One might suppose that distributed causalists could simply accept a "distributed appropriate causation" condition for remembering.

> (DAC) For a subject to genuinely remember a past event, it is necessary that there be a causal connection between the subject's current representation and a past experience of the event that is sustained by a *distributed memory trace* originating in that experience.

[13] For a critical discussion of this view of memory traces, see Robins (2016). For a recent defense of this view, see Sutton and O'Brien (2023).

(DAC) seems to be the obvious way to adapt classical causalism's (AC) so that it fits with distributed causalism, thereby enabling distributed causalism to rule out relearning and to make sense of the distinction between appropriate and deviant causation.

However, as some have already pointed out, it is unclear whether it makes sense to say that a distributed trace originates in the experience of a particular event (Robins 2016; Sant'Anna 2021). For, according to the distributed view of memory traces, a trace is shaped by multiple experiences of similar events. In contrast, (AC) holds that a trace of a given event only originates in the experience of that event. To put it in Langland-Hassan's terms, while (AC) entails "trace monogamy", the distributed view of traces presupposes "trace promiscuity". Trace monogamy is the view, championed by Martin and Deutscher, that a trace will enable one to remember only the event that produced the trace in question. Trace promiscuity denies trace monogamy by allowing that a single trace can both be caused by the experience of multiple events and cause the remembering of multiple events. Therefore, (DAC) is incoherent because distributed traces are by definition not monogamous; in other words, (DAC) is incoherent because it implies two incompatible views of memory traces.

Importantly, it is unclear how trace promiscuity would allow distributed causalists to recognize the remembering-relearning distinction. If trace promiscuity is right and the experience of multiple events can cause multiple memories, nothing prevents instances of relearning from being counted among the experiences that can cause genuine remembering. As Robins puts it, "[t]he patterns that can be reconstructed from [distributed traces] reflect the influence of many past events, including possibly cases of relearning" (2016: 3010). Because trace promiscuity entails the possibility that relearning produces the traces that cause rememberings, and because distributed causalism is committed to trace promiscuity, exclusionism does not follow from this theory. This is an undesirable consequence for distributed causalism *qua* causal theory. Since relearning exemplifies the form of causation

that deviates from the appropriate form that is supposed to characterize remembering, "[t]he basic problem facing the causal theory of memory is to eliminate cases of relearning" (Bernecker 2010: 129). If one endorses trace promiscuity, however, it is not obvious how one might solve this problem.

In order to avoid this undesirable consequence, the distributed causalist might modify (DAC) in order to constrain the promiscuity of distributed traces.

> (DAC') For a subject to genuinely remember a past event, it is necessary that there be a causal connection between the subject's current representation and a past experience of the event that is sustained by a distributed memory trace *at least partly* originating in that experience.

Although distributed traces can originate in experiences of multiple events, (DAC') constrains the promiscuity of traces by requiring that an experience of the remembered event be among the experiences that produce the trace that in turn enables the subject to remember the event. Given that, in relearning, the trace produced by the subject's experience of the apparently remembered event is erased, relearning subjects do not fulfill (DAC'). At first glance, then, it would seem that exclusionism follows from (DAC').

This modified condition, however, faces two important problems. First, this way of constraining the promiscuity of traces appears to be at odds with the distributed view of traces because it requires the experience of a given event to have a distinct causal influence on the remembering process in a way that is incompatible with the idea that traces are not discrete. According to the distributed view, traces are promiscuous in such a way that is not possible to distinguish the specific causal influence of a single experience on a given trace. (DAC') is thus in conflict with the distributed view of traces because it requires the experience of an event to have such a specific causal influence.[14]

[14] Robins (2016) makes a similar point.

A second problem for (DAC') is that it is unclear why one should constrain the promiscuity of traces in the suggested manner simply to ensure that the theory accommodates exclusionism. The strategy of appealing to intuition, endorsing (AC), and giving up on a distributed version of (AC) remains available to causalists. But, again, the problem with this strategy is that (AC) is inconsistent with trace promiscuity, the view of memory traces that constitutes the distinguishing feature of distributed causalism. At this point, distributed causalists face a dilemma: either they endorse trace promiscuity, which would require abandoning (AC) and, therefore, exclusionism, or they endorse (AC) and thereby exclusionism, which would require abandoning trace promiscuity. Opting for the first horn of the dilemma would enable distributed causalists to hold on to the core idea of their theory but would do so at the cost of rendering them incapable of excluding relearning and of making sense of the distinction between appropriate and deviant causation. Opting for the second horn might enable them to avoid these undesirable consequences but would do so at the cost of abandoning the distinguishing feature of their theory.

In an attempt to avoid this dilemma, distributed causalists might adopt a Langland-Hassan-style strategy, arguing that endorsing trace promiscuity does not entail giving up on exclusionism. More specifically, they might deny that promiscuous traces are responsible for distinguishing remembering from relearning. On this view, what does distinguish remembering from relearning is a distinct mental state originating in the experience of the remembered event that is transmitted from that experience to retrieval. According to Langland-Hassan (2022), beliefs and metacognitive feelings might do this kind of causal work. The idea seems to be that, when one genuinely remembers an event, one has a belief or a metacognitive feeling sustaining a discrete causal connection leading from the experience of the event to its remembering. Since typical cases of relearning involve subjects forgetting *all* about the experienced events, the relevant belief or metacognitive feeling will presumably

also be forgotten. Therefore, if this view is right, one should not count those cases as instances of remembering.

Although this is an interesting strategy, it is unclear why one should suppose that memory stores and transmits persistent beliefs or metacognitive feelings from experience to retrieval. Even if empirical research ends up establishing that memory stores and transmits these mental states, it is not obvious why one should assume that, in relearning, the belief or metacognitive feeling originating in the experience of an event will also be forgotten. Cases of relearning, as they are depicted in the philosophical literature, involve a subject completely forgetting the *trace* that carries at least part of the information required to form a memory representation of the event. Since traces are distinct from and independent of the beliefs and metacognitive feelings originating in the experience of the event, it would be possible for a relearning subject to forget the trace but retain the relevant belief or metacognitive feeling. Moreover, it is unclear what would justify adopting the Langland-Hassan-style strategy simply to reconcile exclusionism and trace promiscuity. While there is empirical work supporting trace promiscuity, distributed causalists have so far provided neither empirical evidence nor a real argument for exclusionism. Thus, even if the strategy might provide a means of avoiding the dilemma, the only apparent reason for adopting the strategy would be to accommodate the exclusionist intuition.

Let's take stock. In this section, I first argued that (DAC) is incoherent because it implies both trace monogamy and trace promiscuity. Since distributed causalism is committed to trace promiscuity, and since trace promiscuity allows that relearning might underwrite remembering, I argued, further, that it is unclear how exclusionism follows from distributed causalism. I then suggested that, in order to address these issues, advocates of the theory might endorse (DAC') as a means of constraining the promiscuity of traces. But the kind of constraint invoked in (DAC') seems to be incompatible with the distributed view of traces,

and it is unclear what justifies constraining trace promiscuity in such a manner simply to accommodate exclusionism. Finally, I suggested that a Langland-Hassan-style strategy might enable distributed causalists to endorse both trace promiscuity and exclusionism. It seems, however, that the only reason to adopt such a strategy would, again, be intuition. One might suppose that, because distributed causalism needs to make sense of the distinction between appropriate and deviant causation, appealing to intuition here is not a problem. But, once distributed causalists determine what their account of remembering should look like by relying on the exclusionist intuition, that account is no longer a naturalistic account.

6 Exclusionism and trace minimalism

I will now look at whether exclusionism follows from trace minimalism. I will argue that exclusionism does not follow from this theory because of its commitment to what I will call "vicariism", the view, increasingly popular in psychology, that vicarious remembering is a form of genuine remembering (Pillemer et al. 2015).

Trace minimalism is a causal theory that has the same objective as distributed causalism: to make sense of the constructive character of remembering while preserving (AC). Another similarity between these theories is that they have a naturalistic orientation. But, while distributed causalism appeals to connectionist models to argue for trace promiscuity, trace minimalism appeals to research on hippocampal replay to argue for a non-representational version of trace monogamy (Werning 2020). Werning, the main advocate of trace minimalism, also relies on research on embodiment and language comprehension to broaden the notion of experience at play in (AC) and make sense of vicariism. Although it is possible to construct a coherent version of trace minimalism that is not committed to vicariism, the current main statement of the theory, Werning's trace minimalism, is committed to the view. I focus here on this version of trace minimalism, but it is important to acknowledge that a non-vicariist trace minimalism would be coherent.

A straightforward way of spelling out how Werning's trace minimalism conceives of (AC) is provided by the following "minimalist appropriate causation" condition.

> (MAC) For a subject to genuinely remember a past event, it is necessary that there be a causal connection between the subject's current representation and a past *vicarious or non-vicarious experience* of the event that is sustained by a *minimal memory trace* originating in that experience.

(MAC) incorporates two ideas that are key to understanding the account of remembering provided by trace minimalism. First, causal connections between current representations and past experiences are sustained by minimal traces. Second, both vicarious and non-vicarious experiences can produce the traces in question.

As far as the first idea is concerned, trace minimalism conceives of traces as informationally sparse entities devoid of representational content. On this view, traces are sequential firings of hippocampal place cells which, during retrieval, are projected into the neocortex. At this point, minimal traces interact with neocortical patterns carrying semantic information—or learned statistical regularities—and, as a result, memories acquire the kind of representational content that they are usually thought to have. Minimal traces are monogamous in that the experience of a single event is supposed to leave a discrete informationally sparse state in the hippocampus that will later, in combination with relevant semantic information, enable the subject to construct a memory of that event.

One might think that, since trace minimalism is committed to trace monogamy, exclusionism will follow from the theory. After all, in a typical case of relearning, the subject loses the minimal trace that would otherwise have enabled him to remember the relevant event. However, the second idea involved in (MAC)—that both vicarious and non-vicarious experiences can produce the minimal traces that sustain appropriate causal connections between current representations and past experiences—opens up the possibility of counting

certain cases of relearning as instances of genuine remembering. Before explaining why this is the case, let me clarify some basic points concerning vicarious experience and vicarious memory.

The notion of experience relevant to (AC), as traditionally understood, covers perceptual, proprioceptive, and introspective experiences of events. Trace minimalism also includes "vicarious experience". The idea is that understanding detailed and vivid verbal reports of events can give rise to indirect experiences of those events. Support for this comes from work on embodiment and language comprehension (Johnson 2018). This work suggests, in a nutshell, that subjects produce sensorimotor simulations drawing on relevant stored information to understand linguistic inputs.[15]

As noted above, the motivation for broadening the notion of experience at play in (MAC) in this way is to make sense of vicariism. Vicarious memories are "recollections people have of salient life episodes that were told to them by another person, such as a friend or a family member" (Pillemer et al. 2015: 234). From a trace minimalist standpoint, the structure of a vicarious remembering case is the following. At t_1, a subject S_1 perceptually experiences an event e; at t_2, S_1 shares a detailed verbal report about e with another subject S_2; at t_3, S_2 constructs sensorimotor simulations of e for comprehension purposes, vicariously experiences e, and forms a minimal trace of e derived from his vicarious experience; at t_4, S_2 relies on that trace and relevant semantic information to form a representation of e, that S_2 takes to be a memory of an event experienced by someone else. Because cases having this structure can satisfy (MAC), trace minimalism counts them as genuine cases of remembering.[16]

[15] For the curious reader, there is behavioral and neuroimaging evidence in favor of this idea. Behavioral evidence indicates that linguistic and perceptual tasks interact (Bergen 2015), and neuroimaging evidence shows that brain structures recruited for perceptual experiences are also recruited for comprehending linguistic inputs (Pulvermüller 2013).

[16] A more basic motivation for vicariism is that memories of reported events are ubiquitous (Larsen 1988). For a variety of purposes, we remember information coming from people's stories, gossip, news, minutes of meetings,

At this point, it is easy to see why, once one accepts that cases of vicarious remembering can be cases of genuine remembering, one should also accept that at least some cases of relearning can be cases of genuine remembering. When a relearning subject receives testimony about the forgotten event, he may generate sensorimotor simulations for understanding purposes. As a result, he can vicariously experience the event and form a minimal trace. If this trace has causal influence on the subsequent representation of the event, then the relearning subject should be seen as remembering the event. Therefore, if trace minimalism is right and vicarious experiences can ground rememberings, then cases of relearning grounded in a vicarious experience that the subject had during the episode of information reacquisition can count as genuine cases of remembering. Hence, exclusionism does not follow from this theory.

Consider again the Kent case. Kent witnesses an accident, tells a friend all about the accident, and forgets all about it. If the friend in question shares later a detailed verbal report of the accident, leading Kent to construct a sensorimotor simulation for the purpose of understanding, Kent can vicariously experience the accident. As a result, he can also form a minimal trace of the experience. If this trace later has causal influence on the production of a representation of the event, then trace minimalism should treat this case as an instance of genuine remembering. This would be a case of what might be called "vicariously-grounded relearning", which trace minimalism should consider to be vicarious but genuine remembering.

It is worth noting here that, while, in typical cases of vicarious remembering, subjects form memories of other people's experiences, a particularity of this version of the Kent case is that he ends up forming a vicarious memory of a personally experienced event. This case thus

social media, etc. While most of us place great value on personal memories, memories of reported events play an important role in everyday life that personal memories cannot play due to our biological limitations. More sophisticated motivations for vicariism come from studies revealing functional and phenomenological similarities between personal and vicarious memories (Pillemer et al. 2015).

illustrates what might be called "personal vicarious remembering". Although the very notion of personal vicarious remembering sounds counterintuitive, trace minimalism should be ready to accept it as a consequence of broadening the notion of experience at play in (MAC).

There are two concerns that deserve to be addressed at this point. First, an advocate of trace minimalism can simply introduce an additional condition on vicarious remembering designed to exclude cases of relearning. The condition in question might be that, for a subject to vicariously remember an event, it is necessary that the subject represent a different subject experiencing the event. The basic idea would thus be that, because, in relearning, a subject represents himself experiencing an event, relearning cannot count as an instance of vicarious remembering. In response, I acknowledge that studies on vicarious remembering tend to assume that vicarious remembering involves subjects representing other subjects' experiences. However, this does not mean that personal vicarious remembering is impossible. To rule out the possibility of personal vicarious remembering because doing so allows trace minimalism to exclude relearning is to give priority to the exclusionist intuition over the possible ways in which vicarious remembering can occur. Second, one might draw here on Michaelian (2021) to argue that the very term "vicarious experience" is misleading. Although vicarious experiences are experiences, Michaelian suggests, they are not experiences of events. What is actually experienced in those cases is a report of the event and not the event itself. This worry, however, targets the plausibility of Werning's trace minimalism and not the claim that exclusionism does not follow from that theory. What I need here to cast doubt on exclusionism is the conditional "if Werning's trace minimalism is right, then exclusionism is wrong".[17]

7 The exclusionist intuition and the naturalistic philosophy of memory

[17] It is worth noting that this can be generalized to all the arguments developed in this paper.

The previous discussion gives rise to metaphilosophical questions about the role of the exclusionist intuition in naturalistic philosophy of memory. Is there a role for the intuition in naturalistic theorizing about remembering? If so, what exactly is that role? I do not have enough space to address these questions here in any detail, but let me introduce some potentially useful considerations for future research.

The kind of appeal to intuition discussed in the previous three sections aligns with the traditional view of intuition mentioned in section 2 and assumes that a priori considerations can impose constraints on theorizing about remembering. This is problematic for advocates of simulationism, distributed causalism, and trace minimalism because of their naturalistic orientation. Given their affinities to methodological naturalism, they are meant to be suspicious of ways of theorizing that privilege intuition over solid research projects in the sciences of memory (Andonovski and Michaelian 2024).

While intuition is not the privileged source of evidence in naturalistic philosophy, this does not necessarily mean that intuition should play no role in naturalistic theorizing about remembering. The role that the exclusionist intuition might appropriately play in such theorizing will depend on how one understands the nature and role of intuition in general. If one takes intuitions to be necessarily true and to impose a priori constraints on theory construction, it is unclear what role the exclusionist intuition would play in naturalistic theorizing about remembering. If one instead takes intuitions to reveal initial assumptions one has when theorizing about a given phenomenon (Tobia 2015)—assumptions that need further philosophical and scientific scrutiny—then the exclusionist intuition may play a role in naturalistic theorizing about remembering.

In particular, the exclusionist intuition may help to reveal at least three assumptions about remembering. The first two assumptions seem to be captured in the passage from Robins (2017b) quoted in the introduction. On the one hand, claiming that remembering is

related to eyewitness testimony and that relearning is related to hearsay assumes that the former is, unlike the latter, special in that it provides first-hand information about a subject's previous encounter. On the other hand, claiming that remembering is analogous to a perfect exam that results from studying and that relearning is analogous to an exam that relies on a notecard tucked into a shirtsleeve assumes that the former is, unlike the latter, a special form of retention of information. The third assumption is captured by Martin and Deutscher's appeal to Gray's feelings when discussing the Kent case: "Think how Gray would feel about Kent's claims to remember the first accident again" (1966: 180). Since Kent's lack of recognition that Gray is the source of his current apparent memory motivates the idea that Kent is not remembering, the assumption here is that remembering involves accurate source attributions.

Relying on a view of intuitions as revealing initial assumptions, the assumptions that remembering provides first-hand information, that it is a special form of retention, and that it involves accurate source attributions should be seen not as constraining naturalistic accounts of remembering but as potential tools for hypothesis construction, which will require further philosophical and scientific scrutiny.[18]

8 Conclusion

In this paper, I have argued that exclusionism is a substantive view in need of closer examination because it does not follow from leading naturalistic theories of remembering. Appealing to simulationism, distributed causalism, and trace minimalism, I provided three conditional arguments to that effect. An issue that was not explored here and that future research may clarify is whether the view that opposes exclusionism, what I would call "inclusionism", is worth taking seriously. I also argued that, even if simulationists, distributed

[18] While these considerations and the question about the appropriate roles of intuition in naturalistic philosophy of memory are important, a proper treatment of these metaphilosophical issues is a task that I cannot undertake here due to space constraints. However, given the contemporary naturalistic turn in philosophy of memory, future research should not delay this task for too long.

causalists, and trace minimalists can modify their theories to accommodate exclusionism, the only reason in favor of doing so to which they can appeal is intuition. While I also discussed some of the metaphilosophical questions raised by the latter claim, future research is required to determine the precise role of the exclusionist intuition in naturalistic philosophy of memory.

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