PhiMiSci
Philosophy and the Mind Sciences

Is De Brigard a simulationist?

Kourken Michaelian[ab] (kourken.michaelian@univ-grenoble-alpes.fr)[c]
Juan F. Álvarez[ad] (jalvarces@gmail.com)[c]
James Openshaw[e] (jamesopenshaw0@gmail.com)

Abstract
Though De Brigard is generally classified as a simulationist, the relationship of his view to the various theories that have emerged in the simulationist-causalist debate has so far been unclear. He himself seems to think that he has now made that relationship clear: he is a simulationist, but the form of simulationism that he defends "dissolves the conflict" between simulationism and causalism. In this paper, we argue, in response to his recent book and to a recent paper that further develops some of the ideas proposed therein, first, that the view that De Brigard defends does not in fact dissolve the conflict between simulationism and causalism and, second, that he in fact has yet to take a clear stand with respect to the claim that distinguishes simulationism from causalism. While our focus throughout is on De Brigard, our discussion sheds light on the nature of the relationship between simulationism and causalism in general, reveals that certain causalists have, like De Brigard, failed to take a clear stand with respect to the claim that distinguishes simulationism from causalism, and raises more general issues about the nature and future of the simulationist-causalist debate.

Keywords
Causal theory of memory · Memory · Memory traces · Simulation theory of memory

1 Introduction

Though De Brigard (2014) is generally classified as a simulationist, the relationship of his view to the various theories that have emerged in the simulationist-causalist debate has so far been unclear. He himself seems to think that he has now made that relationship clear: he is a simulationist, but the form of simulationism that he defends "dissolves the conflict" between simulationism and causalism (2024: 68). In this commentary, we argue, in response to his recent book (2024) and to a recent paper (forthcoming) that further develops some of the ideas proposed

[a] Centre for Philosophy of Memory, IPhiG, Université Grenoble Alpes.
[b] Institut universitaire de France.
[c] Joint first author.
[d] Institut für Philosophie II, Ruhr-Universität Bochum.
[e] Nanyang Technological University.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720
 https://philosophymindscience.org ISSN: 2699-0369

therein, first, that the view that De Brigard defends does not in fact dissolve the conflict between simulationism and causalism and, second, that he in fact has yet to take a clear stand with respect to the claim that distinguishes simulationism from causalism. While our focus throughout is on De Brigard, our discussion sheds light on the nature of the relationship between simulationism and causalism in general, reveals that certain causalists have, like De Brigard, failed to take a clear stand with respect to the claim that distinguishes simulationism from causalism, and raises more general issues about the nature and future of the simulationist-causalist debate.[1]

The paper is structured as follows. Section 2 describes the relationship between simulationism and causalism. Section 3 situates De Brigard's view with respect to those theories. Section 4 responds to what we take to be the major (methodological) objection to our argument. Section 5 considers additional objections and briefly concludes.

2 Background: Simulationism vs. causalism

Martin and Deutscher's (1966) *classical causal theory of memory* (CTM-MD) can be seen as having three key features.[2] First, it treats memory and imagination as being sharply distinct in kind—i.e., as being *discontinuous*. Second, it holds that the distinction between memory and imagination is to be understood in terms of the *necessity of appropriate causation* for remembering. Third, it conceives of appropriate (nondeviant) causation in terms of *memory traces* of a sort to which we will refer as *"classical"*. De Brigard himself characterizes classical traces as follows: a classical trace "[represents] the content formed at encoding", which is then "recovered, unchanged, at retrieval". Insofar as the suggestion that traces remain unchanged from encoding to retrieval disallows the sort of loss of content that occurs in forgetting, De Brigard's characterization will be too demanding for many, but it nevertheless gets two key features of classical traces right. First, they are "monogamous" in Langland-Hassan's (2022) sense: a given trace results from experience of a single event and enables the subject to remember only that event. Second, they have explicit representational content—content that derives from the corresponding experiences and is transmitted to the corresponding retrieved memories. In virtue of these features, classical traces do not allow for reconstruction in remembering.

CTM-MD thus both raises and offers clear answers to three questions that have since attracted a great deal of attention.

[1] We note at the outset that our argument will sometimes have a terminological flavour. In section 5, we address the concern that this undermines its importance.

[2] Whether or not Martin and Deutscher are entirely explicit about these features, their theory is standardly interpreted as having them.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

> *The continuity question:* are memory and imagination different in kind?
>
> *The causation question:* is appropriate causation necessary for remembering?
>
> *The trace question:* are traces (assuming that they exist) classical?

Michaelian's (2016) *simulation theory of memory* (STM-KM), on which we focus because it is, as De Brigard notes, "the most precise articulation of the simulation view" (2024: 44), disagrees with classical causalism with respect to all three of these questions, which it answers as follows.

> (NODIFF) There is no difference in kind between memory and imagination—they are *continuous*.[3]
>
> (NOCAUSE) Appropriate causation is *not* necessary for remembering.
>
> (CONTRACE) Remembering involves traces, but the traces that are involved in remembering are "nonclassical" or *"constructive"*.[4]

On the assumption that readers are familiar with the simulationist-causalist debate, we will review neither Michaelian's empirically-inspired argument for simulationism nor Martin and Deutscher's more a priori argument for causalism, and we will likewise not provide precise statements of the theories themselves. But we will point out that multiple constructive conceptions of traces are available. In principle either feature of the classical conception can be rejected while the other is endorsed. A conception that sees traces as being neither monogamous nor representational is arguably in the air today, though many authors explicitly reject one feature of the classical conception while endorsing the other. (Thus Werning (2020) and Perrin (2021), for example, endorse monogamy but reject representation, while Langland-Hassan (2022) and Sutton and O'Brien (2023) endorse representation but reject monogamy.)

These three claims — NODIFF, NOCAUSE, and CONTRACE — can in principle be accepted/rejected independently of each other. They thus define a space of (kinds of) theories that have more or less in common with STM-KM and CTM-MD. See figure 1.

[3] The kind of imagination in question here is what philosophers of memory refer to as episodic imagination, which includes episodic future thought (the future-oriented counterpart of episodic memory) and episodic counterfactual thought.

[4] Note that denial of the necessity of appropriate causation is consistent with acceptance of the claim that remembering involves traces. This point will matter below.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

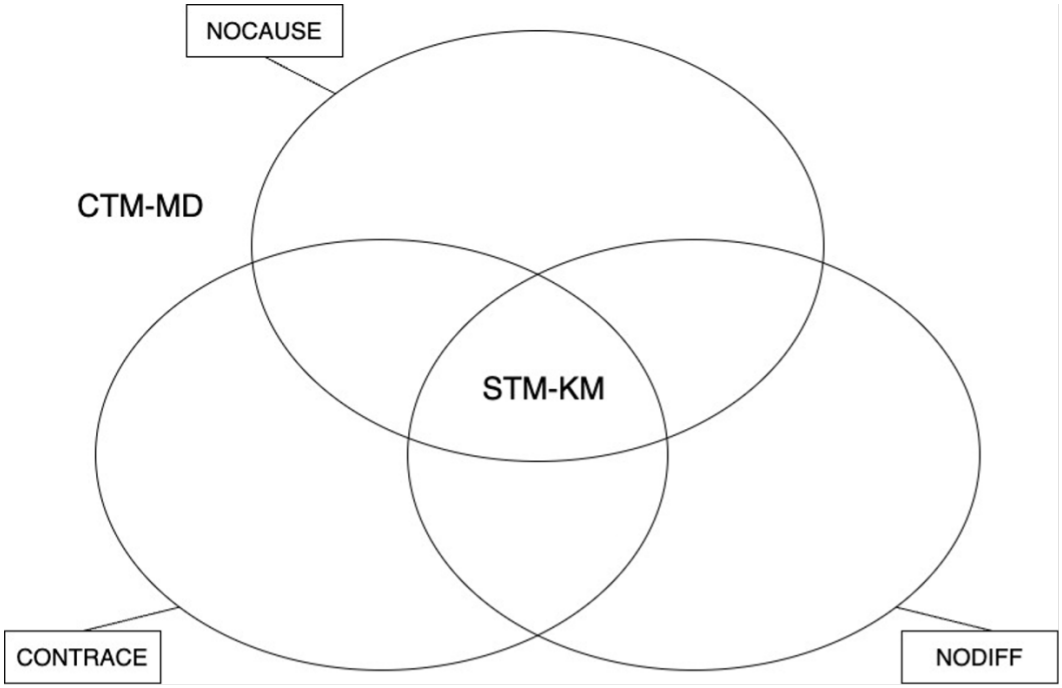

Figure 1: Relationship of STM-KM to CTM-MD. STM-KM endorses NODIFF, NOCAUSE, and CONTRACE. CTM-MD rejects all three claims.

While the locations of STM-KM and CTM-MD in this space are clear, the way in which *simulationism* and *causalism*, understood as broader families of theories, are best defined in terms of the answers that they respectively offer to the continuity, causation, and trace questions may not be immediately obvious. Let us try to clear this up.

We begin with the continuity question. Simulationists and causalists *typically* disagree about the continuity question: simulationists are typically continuists about the relationship between memory and imagination, whereas causalists are typically discontinuists (Michaelian et al., 2024). But they *need not* disagree: it is unclear whether a discontinuist simulationism would make sense, but causalists are not bound to reject continuism. Indeed, some have explicitly endorsed it (e.g., Langland-Hassan, 2023).[5]

We turn next to the causation question. Whereas simulationists and causalists can in principle agree about the continuity question, they inevitably disagree about the causation question, for the straightforward reason that *what makes a theory of memory a causal theory is that it holds that appropriate causation is necessary for remembering*. All will agree that the necessity of appropriate causation for remembering is the central point of Martin and Deutscher's foundational paper.

[5] We note, however, that Langland-Hassan defends an unusual sort of causalism according to which appropriate causation need not be underwritten by a memory trace but may be underwritten by other factors.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

And there has not, since that paper, been a single case in which a self-proclaimed causalist has explicitly rejected the necessity of appropriate causation. Indeed, it is difficult to see what might make a theory of memory a causal theory other than the fact that it holds that appropriate causation is necessary for remembering. Matters are slightly less straightforward when it comes to simulationism, given that some simulationists (De Brigard; Shanton & Goldman (2010)) have not taken an explicit stand with respect to the necessity of appropriate causation. Michaelian (2016) does, however, explicitly reject it, and simulationism is generally treated as an anticausalism. This makes sense, given that *a simulationism that accepted the necessity of appropriate causation would simply be a constructive causalism* (see section 3).

We turn, finally, to the trace question. STM-KM endorses constructive traces, while CTM-MD endorses classical traces. Those particular forms of simulationism and causalism thus disagree about the trace question. Nevertheless, simulationism and causalism more generally do *not* typically disagree with respect to that question. It is unclear whether a simulationism that endorses classical traces would make sense, but causalists are not bound to endorse classical traces, and in fact most contemporary causalists endorse constructive traces of one sort or another. This goes both for those who endorse continuism (Langland-Hassan, 2023) and for those who reject it (e.g. Perrin, 2021; Werning, 2020). The *constructive causal theory* has, in fact, been the norm for some years now among causalists (e.g., McCarroll, 2018; Michaelian, 2011; Sutton & O'Brien, 2023).[6] Indeed, while causalists offer a variety of competing accounts of the nature of constructive memory traces, there is not a single contemporary causalist who defends a classical conception of traces.

Figure 2 sums up the foregoing discussion.[7] There are two key points to note. First, what makes a theory of memory a causal theory is that it holds that appropriate causation is necessary for remembering. This is what causalists have in common with each other and what differentiates them from simulationists. Second, it is thus, in order for a theory to qualify as a simulation theory, sufficient neither for it to hold that there is no difference in kind between memory and imagination nor that traces are constructive—the theory must hold, further, that appropriate causation is not necessary for remembering.

[6] Even Bernecker (2010) at least nominally endorses constructive traces.

[7] Because there are different ways of rejecting the classical conception of traces and hence different ways of endorsing CONTRACE, the figure, which does not take this into account, is an oversimplification: there is much, in addition to their disagreement over NODIFF, that separates Werning and Perrin, on the one hand, from Langland-Hassan, on the other.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

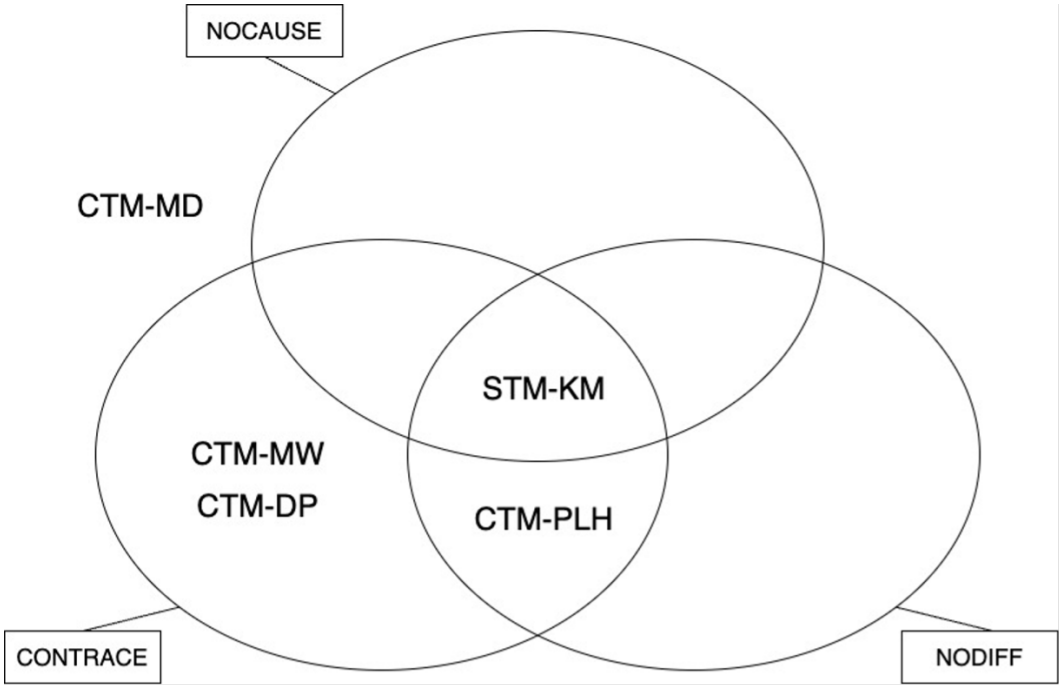

Figure 2: Positions of selected contemporary causal theories. CTM-PLH (Langland-Hassan), endorses NODIFF and CONTRACE while rejecting NOCAUSE. CTM-MW (Werning) and CTM-DP (Perrin) endorse CONTRACE while rejecting NODIFF and NOCAUSE.

Before moving on, we note two further points. First, this way of presenting the relationship between simulationism and causalism might appear to suggest that simulationism is a purely negative view—that it amounts to the rejection of the necessity of appropriate causation. But that appearance is misleading. Because they reject the necessity of appropriate causation, simulationists owe us an alternative positive story about what distinguishes genuine from merely apparent remembering. Michaelian's (2016) story characterizes remembering as reliable imagining. Alternative positive simulationist stories might be available, but none has yet been articulated. Second, simulationists are not alone in rejecting the necessity of appropriate causation. The family of *postcausal theories* (defined as theories that endorse NOCAUSE but that continue to employ much of the conceptual vocabulary of causalism) includes, in addition to the simulation theory, the functionalist theory of memory formulated by Fernández (2019). The functionalist theory tells a story about what distinguishes genuine from merely apparent remembering that has little in common with the simulationist family of theories. While both of these points are worth bearing in mind, neither will play a prominent role in what follows.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

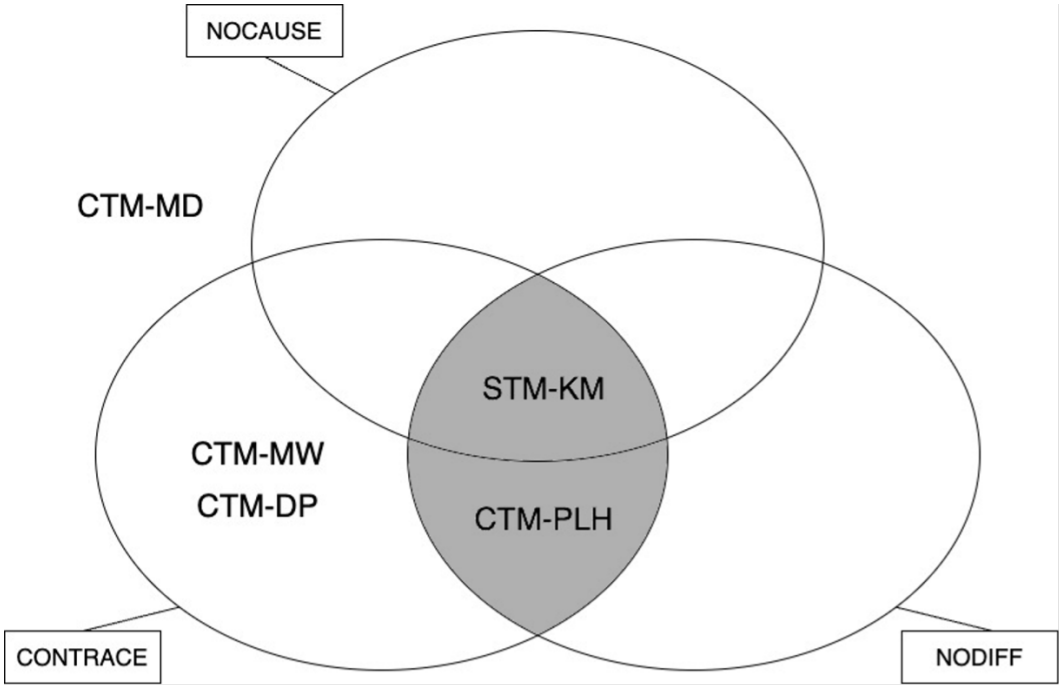

Figure 3: Potential locations of STM-FDB-2014. STM-FDB-2014 endorses NODIFF and CONTRACE. It takes no stand with respect to NOCAUSE.

3 De Brigard's simulationism

Though STM-FDB-2014, the theory defended by De Brigard (2014), is generally classified as a form of simulationism, it is not entirely clear whether it ought to be so classified. The theory clearly endorses NODIFF, treating remembering as a special case of episodic hypothetical thinking, a category that also includes episodic future thinking and episodic counterfactual thinking.[8] The theory also clearly endorses CONTRACE. In particular, De Brigard appears to reject both monogamy and representation. But the theory does not clearly endorse or reject NOCAUSE. Indeed, De Brigard (2014) does not explicitly discuss the causation question. This means that STM-FDB-2014 is located either in the same region as STM-KM or in the same region as CTM-PLH.[9] In other words, *it is not clear whether De Brigard's 2014 view is a form of simulationism or rather a form of constructive causalism.* See figure 3.

Subsequent publications by De Brigard have shed little light on where his theory is located. In De Brigard (2017), we learn more about his understanding of

[8] Assuming NODIFF, episodic hypothetical thought is equivalent to episodic imagination.

[9] One might object here that attempting to situate De Brigard's view in this space presupposes that he aims to provide a theory of the same sort as CTM-MD and STM-KM—that is, a theory that states putatively necessary and sufficient conditions for the occurrence of remembering—but that it is not clear that he in fact aims to provide a theory of that sort. We address this objection in section 4.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

the relationship between memory and imagination. In De Brigard (2020), we learn more about his understanding of the nature of memory traces. But neither paper offers a clear answer to the causation question.

Given the centrality of the causation question to the simulationist-causalist debate, and given that De Brigard considers himself to be a simulationist, the fact that he has not taken a clear stand with respect to the causation question is surprising. Fortunately, his recent book (De Brigard, 2024) and paper (De Brigard, forthcoming) sheds some light on the matter—not in the sense that they make his stand clear, but rather in the sense that critically examining them makes it clear why he has not yet taken a stand. De Brigard makes, we contend, two mistakes. First, *he mistakenly identifies simulationism with the view that remembering is reconstructive*. Second, *he mistakenly holds that simulationism denies the need for an adequate theory of memory to invoke traces*.

We begin with the first mistake. De Brigard begins by opposing a view of remembering as *reproductive* (or preservative) to a view of remembering as *reconstructive*. He then *identifies the reproductive view with causalism and the reconstructive view with simulationism*, saying that "[t]his tension between the [reproductive] view of the philosopher and the reconstructionist view of the psychologist is reflected today in two of the leading theories in the philosophy of memory: causalism and simulationism." This identification results in an attractively simple picture. But this simplicity comes at the cost of *overlooking the availability of constructive causalism*. It is noteworthy, in this connection, that De Brigard's recounting of the simulationist-causalist debate simply skips over constructive causalism. He does not cite Michaelian (2011), which is typically cited when the constructive causal theory comes up. He does cite Werning (2020) and Perrin (2021) as endorsing a conception of traces similar to his own, but he does so only in passing, and he does not note that they are causalists. Other causalists who subscribe to a constructive conception of traces (e.g., Langland-Hassan, 2023; Sutton & O'Brien, 2023) either are not cited or are cited in connection with other issues.

We turn to the second mistake. De Brigard characterizes simulationism—apparently including STM-FDB-2014—as holding that "we [do not] need to appeal to memory traces to explain remembering". This characterization is sufficiently odd that it is worth quoting some of the many passages in which De Brigard expresses it. He claims that "[s]imulationism [...] rejects the need for an appropriate causal condition and, thereby, makes the appeal to memory traces unnecessary." Similarly, he suggests that "simulationism can [...] remove the need to postulate memory traces, understood as preserved stand-ins for the encoded content, poised to be recovered at the time of retrieval. If an accurate memory is fully reconstructed at retrieval, talk about memory traces may become unnecessary." In the same vein, he says that "simulationism has no use for memory traces". He even goes so far as to say that "[m]emory traces [...] appear to be incompatible with simulationism." The characterization is odd, first, because Michaelian (2016), which De Brigard discusses at some length, explicitly invokes traces in developing

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

an explanation of remembering. In more recent work, moreover, Michaelian (2023; 2024) has argued in some detail that traces must be invoked in order to explain a variety of mnemic phenomena (e.g., forgetting). The characterization is odd, second, because De Brigard (2014) himself repeatedly invokes traces.

One might attempt to explain De Brigard's characterization by suggesting that he has in mind, at the relevant stage of his argument, something like the classical conception of traces.[10] If he were to have the classical conception in mind, then it would, given that that conception is arguably incompatible with the sort of constructive picture of retrieval that simulationism endorses, be reasonable for him to claim that traces are incompatible with simulationism. For two reasons, however, this explanation is unconvincing. First, De Brigard appears to infer the incompatibility of traces with simulationism not from the fact that simulationism endorses a constructive picture of retrieval but rather from the fact that it rejects the necessity of appropriate causation. Second, the availability of constructive conceptions of traces is nothing new (Sutton, 1998), and, as we will shortly see, De Brigard is well aware that multiple conceptions of traces are available, including constructive conceptions that pair naturally with simulationism.

Whatever the explanation of De Brigard's characterization, his two mistakes—identifying simulationism with the view that remembering is reconstructive and holding that simulationism denies the need for an adequate theory of memory to invoke traces—together allow him to present his current version of simulationism—STM-FDB-2024—as dissolving the conflict between simulationism and causalism. The basic idea is that causalism, on the one hand, is right to invoke traces but wrong insofar as it takes traces to be classical; existing forms of simulationism, on the other hand, are wrong to reject traces but right to emphasize construction. De Brigard's version of simulationism, which introduces a constructive conception of traces, thus seems to him to dissolve the conflict between the two theories.

The problem is that the constructive conception of traces is shared by existing forms of simulationism (STM-KM and STM-FDB-2014) and current forms of causalism (CTM-PLH, CTM-MW, CTM-DP, Sutton and O'Brien's (2023) approach, Michaelian's (2011) theory, and others). STM-FDB-2024 involves a different version of the constructive conception of traces, but there is nothing about that version that should enable it to dissolve the conflict between simulationism and causalism, whereas other versions are unable to do so. Moreover, *there is simply no hope of dissolving the conflict.*[11] Because De Brigard takes the question over which simulationists and causalists disagree to concern the trace question rather than the

[10] We note in passing that, though many philosophers of memory reject the classical conception in favour of the constructive conception, there are some who continue to take something very much like the classical conception seriously. See, e.g., Robins (2023).

[11] We note that, while De Brigard makes a mistake in supposing that the simulationist-causalist conflict can be dissolved, others have made the same mistake. See, e.g., Ménager, Choi, & Robins (2022). McCarroll, Michaelian, & Nanay (2024) acknowledge that simulationism and causalism are mutually inconsistent but argue that there is nevertheless a sense in which they can be reconciled.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

causation question, he appears to consider the causation question to be of secondary importance, writing: "whether probabilistic dispositionalism [i.e., his current constructive conception of traces] can help to understand our tendency to think of remembering in causal terms is […] a story I need to leave for another day". But the fact that they offer incompatible answers to the question is, we have seen, what makes the difference between simulationism and causalism—it is what makes it impossible to reconcile simulationism and causalism.

The fact that De Brigard (2024, forthcoming) offers no answer to the causation question means that we still do not know where his view is located. The possible locations of STM-FDB-2024, however, may differ from those of STM-FDB-2014. De Brigard (2014), on the one hand, agrees with Michaelian (2016) in endorsing NODIFF. There are differences of emphasis between the two views, but both hold that memory and imagination are underwritten by a common episodic construction system and therefore qualify as subkinds of a common kind. De Brigard (forthcoming), on the other hand, points to a range of empirical evidence against this view and comes to the conclusion that "simulationism needs to abandon the idea that there is a unified cognitive system for episodic simulation". He does think that memory and imagination have something in common—that "a healthy hippocampus […] is needed to successfully engage in episodic recollection and certain kinds of episodic simulations". But he may no longer to be committed to NODIFF.

Assuming that it rejects NODIFF, STM-FDB-2024 is located either in the same region as CTM-MW and CTM-DP or at the intersection of NOCAUSE and CONTRACE. In the former case, it is another form of constructive causalism—as noted above, a simulationism that accepts the necessity of appropriate causation is simply a constructive causalism. In the latter case, the theory might amount to a form of discontinuist simulationism (though it is unclear whether a discontinuist simulationism makes sense). In other words, *it is not clear whether De Brigard's current view is a form of simulationism or rather a form of constructive causalism.* See figure 4.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

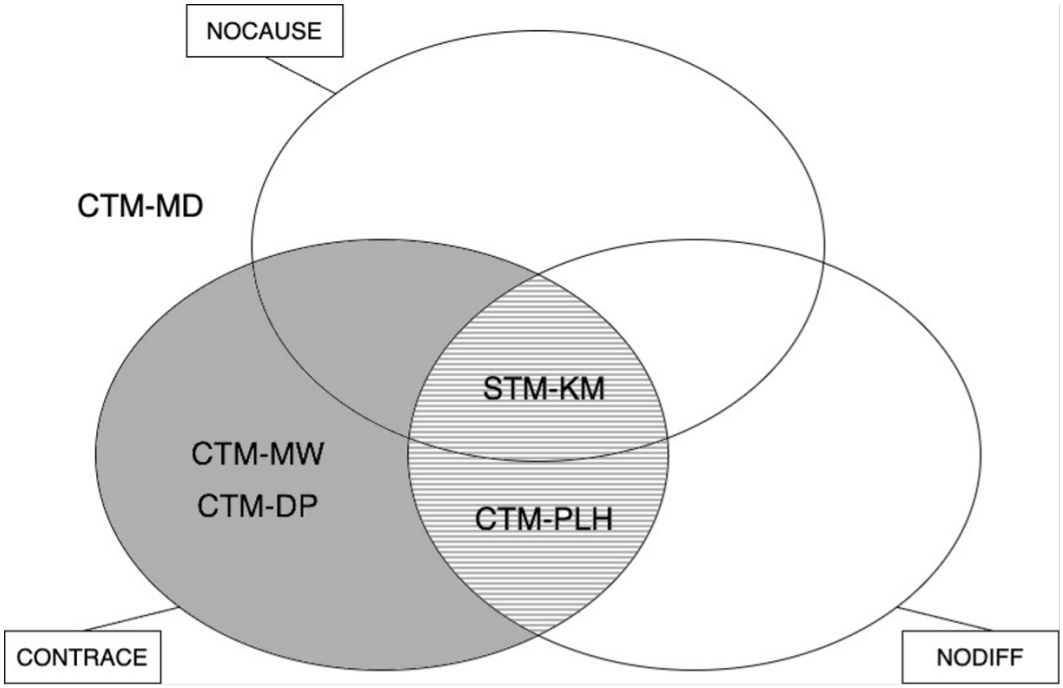

Figure 4: Potential locations of STM-FDB-2024. STM-FDB-2024 endorses CONTRACE and (possibly) rejects NODIFF. It takes no stand with respect to NOCAUSE.

4 Naturalism and the simulationist-causalist debate

As noted above, one might object that our argument presupposes that De Brigard aims to provide a theory of the same sort as CTM-MD and STM-KM—that is, a theory that states putatively necessary and sufficient conditions for the occurrence of remembering—but that it is not clear that he in fact aims to provide a theory of that sort. The idea would be that the goal is to provide a naturalistically respectable and broadly functionalist theory of remembering, and that such theories do not in general—at least in domains of the sort at issue here—state putatively necessary and sufficient conditions, simply because there are no necessary and sufficient conditions for the relevant phenomena (see Andonovski, 2018; Andonovski & Michaelian, 2024).

Addressing this objection fully would require much more space than we have available here, but we acknowledge its importance and want briefly to make two points in reply. First, we point out that, while De Brigard does adopt a recognizably naturalistic approach (relying heavily on evidence from the empirical sciences of memory), he also motivates his version of simulationism by opposing it to certain theories that do provide necessary and sufficient conditions and allying it with others. It is therefore not unreasonable to expect his theory likewise to provide necessary and sufficient conditions. We note, in passing, that De Brigard is not

alone in being unclear about whether he intends to provide necessary and sufficient conditions. Werning, for example, says that "the Sequence Analysis [i.e., his theory of memory] was never meant to be a conceptual analysis of remembering, not even a conjunction of necessary and together sufficient properties" (2020: 313). In formulating the sequence analysis, however, Cheng and Werning explicitly state necessary and sufficient conditions for remembering (2016: 1354). Michaelian (2016) similarly begins by arguing that episodic memory is a natural kind, where natural kinds are understood as homoeostatic property cluster kinds, but goes on to provide putatively necessary and sufficient conditions for remembering. Second, we point out that, if De Brigard does not aim to provide such conditions, a question arises about how he ought to conceive of the simulationism-causalism debate. If one can be a simulationist or a causalist without taking a stand with respect to NOCAUSE, it is far from clear what distinguishes the two families of theories. And while there is perhaps room for optimism about how the debate may proceed were it to transcend the pursuit of exceptionless necessary and sufficient conditions, De Brigard's recommendation that we "[f]orget about the account; just think about the case" (2024: 27) is regrettably opaque. Surely, we should not cease systematic theorizing entirely.

5 Conclusion

We have argued, first, that the view that De Brigard defends does not in fact dissolve the conflict between simulationism and causalism and, second, that he in fact has yet to take a clear stand with respect to the question over which simulationists and causalists centrally disagree and hence cannot properly be classified as a simulationist.

While De Brigard's failure to take a clear stand with respect to NOCAUSE is surprising, the same ambiguity is present in the work of other philosophers of memory, including—and this is perhaps even more surprising—in that of certain avowed causalists. Consider Sutton & O'Brien's (2023) defence of a version of the constructive causal theory. Their version of the theory invokes a distributed conception of memory traces inspired by connectionist models. Responding to Robins (2016), who points out that there is an apparent tension between the distributed conception of traces and the causal theory's claim that appropriate causation is required for remembering, they acknowledge that it may ultimately be impossible coherently to subscribe both to the distributed conception of traces and to the appropriate causation requirement and argue that, if that should indeed turn out to be impossible, then *causalists ought to give up the appropriate causation requirement—in other words, to endorse NOCAUSE*:[12]

[12] See also Andonovski (2020: 358-359), who considers (but does not endorse) this move on behalf of causalists.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

> [W]e can challenge the assumption that a causal theory of memory requires a unique and distinguishable causal connection running through from a particular experience to retrieval. Instead, we might propose that memory requires *some* causal connection between them (though not necessarily a unique and distinguishable one), and some appropriate relation of content between the experiences then and now. (Sutton & O'Brien, 2023: 96)

Just as adopting a constructive conception of traces does not make a theory of memory a simulation theory, however, *adopting some conception of traces or other does not make a theory of memory a causal theory*. Thus, just as De Brigard cannot properly be classified as a simulationist, Sutton and O'Brien cannot properly be classified as causalists.

One might object here that our conclusion is purely terminological—that we are arguing merely that the terms "simulationism" and "causalism" ought to be used in certain ways. In reply, we acknowledge that there is a sense in which our conclusion is terminological, but we point out that terminology is far from unimportant. Setting aside the question how the terms "simulationism" and "causalism" ought to be used, our insistence on being precise about the various claims with respect to which (those who are typically classified as) simulationists and (those who are typically classified as) causalists have disagreed has served, we believe, to clarify the shape of the space of available theories of remembering. One might elect to follow Sutton and O'Brien in giving up on appropriate causation while continuing to call oneself a "causalist". What our discussion shows is that, in so doing, one ends up, at minimum, very close to the camp of those who call themselves "simulationists". Given that contemporary "causalists" agree with "simulationists" on the constructive conception of traces, if a "causalist" likewise agrees with "simulationists" regarding the nonnecessity of appropriate causation, the only remaining issue regarding which he might disagree with "simulationists" is that of the relationship of memory to imagination. A view that endorses CONTRACE and NOCAUSE but rejects NODIFF might well be coherent, but there is fairly little that is recognizably causalist left in such a view. And there is nothing at all that is recognizably causalist left in a view that endorses NODIFF in addition to CONTRACE and NOCAUSE. Since simulationism and causalism are generally held to be incompatible, the fact that Sutton and O'Brien take themselves to be defending causalism, whereas Michaelian defends simulationism, means that we are likely to take their views to be fundamentally in conflict with each other even if they are not. Getting the terminology straight prevents us from falling into this trap. In the light shed by such clarity, we may come to see that the disagreements separating some theorists are pitched not at the level of necessary and sufficient conditions but instead concern, for instance, the causal role and etiological functions of certain systems.

One might also object that De Brigard might intend to use the term "simulationism" in such a way that our interpretation of his argument is misleading: he might,

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720

in particular, intend to use that term to refer to a broader family of (philosophical and nonphilosophical) views—including, for example, Schacter and Addis's (2007) constructive episodic simulation hypothesis—that it is natural to associate with the rejection of traces. That family would contrast with the family of "trace views" of memory, views, including causalism, that appeal to traces to account for remembering (e.g., Robins, 2023). The suggestion would then be that De Brigard's claim that his position dissolves the conflict between simulationism and causalism because it combines simulationism with an appeal to traces is reasonable. In reply, we make two points. First, using the terms "simulationism" and "causalism" to refer to views characterized primarily in terms of the rejection or endorsement of traces will, for the reasons given above, muddy the waters. While simulationists and causalists of a classical bent may disagree about the (nonclassical or classical) nature of traces, simulationists and causalists of all stripes can agree that an appeal to traces is necessary to account for remembering. Second, we acknowledge that the issue of the explanatory (in)dispensability of traces, which concerns the kind of entities that theories of remembering should or should not invoke, is genuine, but we point out that it is distinct from (though related to) the questions that drive the simulationism-causalism debate.

We thus maintain that De Brigard has not dissolved the conflict between simulationism and causalism and that he cannot (yet) be classified as a simulationist.

Acknowledgments
Work on this article was supported by ANR grant number ANR-23-CE54-0004-01, by the ANR in the framework of the "Investissements d'avenir" program (ANR-15-IDEX-02), by ORCHID grant number 112-2927-I-A49A-501, and by Marie Skłodowska-Curie grant number 101032391. This paper was presented in a symposium on Felipe De Brigard's (2024) book within Issues in Philosophy of Memory 4 in Geneva; thanks to De Brigard for his comments and to the audience for their feedback. It was also presented in a seminar at the Chinese Academy of Sciences Institute of Philosophy; thanks to Naoyuki Kajimoto and Qiantong Wu, our commentators, for their comments and to the audience, especially Tung-Ying Wu and Yuping Wang, for their feedback. Thanks also to Jakub Rudnicki for feedback on a written draft and to two anonymous referees for their reports.

References

Andonovski, N. (2018). Is episodic memory a natural kind? *Essays in Philosophy*, *19*(2), 178–195. https://doi.org/10.7710/1526-0569.1609

Andonovski, N. (2020). Singularism about episodic memory. *Review of Philosophy and Psychology*, *11*(2), 335–365. https://doi.org/10.1007/s13164-020-00464-y

Andonovski, N., & Michaelian, K. (2024). Naturalism and simulationism in the philosophy of memory. In A. Hossein Khani, G. Kemp, H. S. Rezaei, & H. Amiriara (Eds.), *Naturalism and its challenges* (pp. 252–273). Routledge.

Bernecker, S. (2010). *Memory: A philosophical study*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199577569.001.0001

Cheng, S., & Werning, M. (2016). What is episodic memory if it is a natural kind? *Synthese*, *193*(5), 1345–1385.

De Brigard, F. (2014). Is memory for remembering? Recollection as a form of episodic hypothetical thinking. *Synthese*, *191*(2), 155–185. https://doi.org/10.1007/s11229-013-0247-7

De Brigard, F. (2017). Memory and imagination. In S. Bernecker & K. Michaelian (Eds.), *The routledge handbook of philosophy of memory* (pp. 127–140). Routledge.

De Brigard, F. (2020). The explanatory indispensability of memory traces. *The Harvard Review of Philosophy*, *27*, 23–47. https://doi.org/10.5840/harvardreview202072328

De Brigard, F. (2024). *Memory and remembering* (1st ed.). Cambridge University Press. https://doi.org/10.1017/9781108955447

De Brigard, F. (forthcoming). Simulationism and memory traces. In S. Aronowitz & L. Nadel (Eds.), *Space, time, and memory*. Oxford University Press.
Fernández, J. (2019). Memory: A self-referential account. In *Estudios de Filosofía* (pp. 237–243). Oxford University Press. https://doi.org/10.17533/udea.ef.n64a13
Langland-Hassan, P. (2022). Propping up the causal theory. *Synthese*, *200*(2), 95. https://doi.org/10.1007/s11229-022-03635-9
Langland-Hassan, P. (2023). Remembering, imagining, and memory traces: Toward a continuist causal theory. In A. Sant'Anna, C. J. McCarroll, & K. Michaelian (Eds.), *Current controversies in philosophy of memory* (pp. 19–37). Routledge.
Martin, C. B., & Deutscher, M. (1966). Remembering. *The Philosophical Review*, *75*(2), 161–196. https://doi.org/10.2307/2183082
McCarroll, C. (2018). *Remembering from the outside: Personal memory and the perspectival mind*. Oxford University Press.
McCarroll, C., Michaelian, K., & Nanay, B. (2024). Explanatory contextualism about episodic memory: Towards a diagnosis of the causalist-simulationist debate. *Erkenntnis*, *89*, 2273–2301.
Ménager, D. H., Choi, D., & Robins, S. K. (2022). A hybrid theory of event memory. *Minds and Machines*, *32*(2), 365–394. https://doi.org/10.1007/s11023-021-09578-3
Michaelian, K. (2011). Generative memory. *Philosophical Psychology*, *24*(3), 323–342. https://doi.org/10.1080/09515089.2011.559623
Michaelian, K. (2016). *Mental time travel: Episodic memory and our knowledge of the personal past*. MIT Press. https://doi.org/10.7551/mitpress/10591.001.0001
Michaelian, K. (2023). If remembering is imagining, then what is forgetting? In A. Berninger & Í. Vendrell-Ferran (Eds.), *Philosophical perspectives on memory and imagination*. Routledge.
Michaelian, K., Sakuragi, S., Openshaw, J., & Perrin, D. (2024). Mental time travel. In L. Bietti & M. Pogačar (Eds.), *Palgrave encyclopedia of memory studies*. Palgrave.
Perrin, D. (2021). Embodied episodic memory: A new case for causalism? *Intellectica. Revue de l'Association Pour La Recherche Cognitive*, *74*(1), 229–251. https://doi.org/10.3406/intel.2021.1992
Robins, S. (2016). Representing the past: Memory traces and the causal theory of memory. *Philosophical Studies*, *173*(11), 2993–3013. https://doi.org/10.1007/s11098-016-0647-x
Robins, S. (2023). The 21st century engram. *Wiley Interdisciplinary Reviews: Cognitive Science*, *14*(5), e1653. https://doi.org/10.1002/wcs.1653
Schacter, D. L., & Addis, D. R. (2007). The cognitive neuroscience of constructive memory: Remembering the past and imagining the future. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *362*(1481), 773–786. https://doi.org/10.1098/rstb.2007.2087
Shanton, K., & Goldman, A. (2010). Simulation theory. *Wiley Interdisciplinary Reviews: Cognitive Science*, *1*(4), 527–538. https://doi.org/10.1002/wcs.33
Sutton, J. (1998). *Philosophy and memory traces: Descartes to connectionism* (1. publ). Cambridge University Press.
Sutton, J., & O'Brien, G. (2023). Distributed traces and the causal theory of constructive memory. In A. Sant'Anna, J. C. McCarroll, & K. Michaelian (Eds.), *Current controversies in philosophy of memory* (pp. 82–104). Routledge.
Werning, M. (2020). Predicting the past from minimal traces: Episodic memory and its distinction from imagination and preservation. *Review of Philosophy and Psychology*, *11*(2), 301–333.

Michaelian, K., Álvarez, J. F., & Openshaw, J. (2025). Is De Brigard a simulationist? *Philosophy and the Mind Sciences*, *6*. https://doi.org/10.33735/phimisci.2025.11720