Title: Mental time travel

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Definition: Episodic memory has often been viewed as being fundamentally *of* the past, as being dependent on the transmission of content *from* the past, and, insofar as it preserves a certain kind of knowledge, as being *for* the past. The mental time travel paradigm in psychology, which provides an influential model of the relationships between capacities including episodic memory, episodic future thought, and episodic counterfactual thought, has encouraged researchers in multiple disciplines to reconsider these views. Driven by evidence concerning the overlapping brain regions that they engage, the mental time travel paradigm treats these capacities as expressions of a single underlying system, suggesting that memory may have as much to do with the future as it does with the past.

Synonyms: mental time travel; memory; collective memory; philosophy of memory; memory studies

[I]t is not possible to remember the future, which is instead an object of judgement and prediction. … [M]emory is of the past.

- Aristotle (Sorabji 2006: 47)

[E]pisodic memory [is] part of a more general faculty of mental time travel that allows us not only to go back in time, but also to foresee, plan, and shape virtually any specific future event.

- Suddendorf and Corballis (2007: 299)

1 Introduction

Intuitively, as Aristotle suggests in the first of this entry's epigraphs, memory pertains to the past, and much research on memory—both in the home discipline of the authors of the entry, philosophy (Bernecker & Michaelian 2017), and in the various disciplines that contribute to the interdisciplinary field of memory studies (Tota & Hagen 2016)—continues to take this intuition for granted. Starting with Tulving's pioneering work (Tulving 1983), however, research in psychology has made it increasingly clear that there is an important sense in which memory has as much to do with the future as it does with the past. *Mental time travel*, as the cognitive process of which this research appears to suggest remembering the past and imagining the future are but special cases has come to be known, has been understood in terms of constructive episodic simulation (Schacter & Addis 2007, 2020), scene construction (Hassabis & Maguire 2007, 2009), episodic hypothetical thought (De Brigard 2014; De Brigard & Parikh 2019), and a variety of other theoretical notions. The differences among these notions are important but will not concern us here. What will concern us here is the general idea that, as Suddendorf and Corballis suggest in the second of this entry's epigraphs, what one does when one remembers the past may not differ fundamentally from what one does when one imagines the future.

The purpose of the entry is threefold. First, it introduces the basics of the mental time travel paradigm (section 2). Second, it reviews some of the implications of the findings of research conducted within that paradigm for the philosophy of memory (section 3). Finally, it considers the potential implications of those findings for memory studies (section 4).[1]

2 Mental time travel

The claim that memory has as much to do with the future as it does with the past makes for a memorable slogan, but the slogan needs to be made more precise if it is to be at all informative. Precisifying the slogan involves answering two questions. First, what kind of memory is at issue? Second, what, exactly, might that kind of memory have to do with the future? Section 2.1 deals with the first of these questions, section 2.2 with the second.

2.1 Episodic memory

What kind of memory is at issue in the mental time travel paradigm? Any attempt to answer this question is complicated by the fact that it is not entirely clear what kinds of memory there are. Starting with linguistic considerations, for example, some philosophers have proposed taxonomies of memory based on the various complements that can be taken by the verb "remember" (Bernecker 2010), e.g., event- or object-denoting determiner phrases, versus propositional 'that'-clauses (see Werning & Cheng (2017) for discussion). Opposing this linguistic approach and adopting an empirically-informed approach, other philosophers have favoured taxonomies inspired by distinctions among forms of memory in terms of their duration (ultra-short-term, short-term, or long-term) (Werning & Cheng 2017; Atkinson and Shiffrin 1968). Psychologists, meanwhile, have recently proposed a variety of alternative taxonomies (Henke 2010; Murray et al. 2016) and have even challenged the very attempt to draw sharp distinctions among kinds of memory (e.g., Rubin 2022). There is, nevertheless, a

[1] For further discussion of the implications of mental time travel research for the philosophy of memory, see Michaelian, Perrin and Sant'Anna (2020). For further discussion of the implications for memory studies, see Michaelian and Perrin (2023). See Addis (2020) for a detailed overview of the psychological literature.

rough consensus in both philosophy and psychology on a taxonomy defended most influentially by Squire (2004).[2]

On this taxonomy, we begin by distinguishing between nondeclarative and declarative memory. Nondeclarative memory, thought to include procedural memory, priming, conditioning, and a variety of other forms of memory that cannot be brought to consciousness, can be set aside here. Within declarative memory, we further distinguish between semantic memory and episodic memory (see entry Episodic Memory). Both semantic and episodic memory can be brought to consciousness, though there may be important differences between the kinds of consciousness that they respectively involve, with only the latter involving a sense of the self in subjective time—what Tulving referred to as *autonoetic consciousness* (Tulving 1985; Perrin, Michaelian & Sant'Anna 2020). There also appear to be important differences between the kinds of content of which the rememberer comes to be conscious in semantic and in episodic remembering, with semantic memory enabling one to recall facts in general, while episodic memory enables one to recall the events of one's personal past in particular: when one recalls that Tokyo is the capital of Japan, one is remembering semantically; when one recalls one's first visit to Tokyo, in contrast, one is remembering episodically (see Sakuragi 2019). There has been some discussion of the role played by semantic memory in our thought about the future (Szpunar, Spreng & Schacter 2016; Irish 2016), but the mental time travel research programme launched by Tulving is concerned, first and foremost, with the link between *episodic memory* and its future-oriented counterpart, *episodic future thought*.

The idea that there is an intimate link between remembering the events of the personal past and imagining the events of the personal future has excellent empirical credentials, but it

[2] For additional discussion of kinds of memory, see Andonovski (2018); Cheng and Werning (2016); Colaço (2022); Klein (2015); Michaelian (2011b); Openshaw (2022).

remains counterintuitive. Episodic memory, after all, pertains to the past in a more basic sense than does any other form of memory. Other forms of memory *come from* the past: if one remembers something now, one must have learned it in the past;[3] what one remembers, however, need not be *about* the past. Episodic memory, in contrast, both *comes from* and is *about* the past (Hoerl 2018). The counterintuitive implications of the mental time travel paradigm may have surprising consequences both for the philosophy of memory and for memory studies.

2.2 Episodic future thought

What might episodic memory have to do with the future? The facts that one semantically remembers may be about the past or the future: one can remember that the 2020 Olympics were held in Tokyo but also that the 2024 Olympics will be held in Paris. The events that one episodically remembers, however, are necessarily situated in the past. By definition, episodic memory is not *about* the future.

Episodic memory might pertain to the future in the sense that it is *for* the future. The idea here is that the primary function of the system that enables us to remember the past—what Michaelian (2016b) calls the "episodic construction system"—is not to enable us to remember the past but rather to enable us to imagine the future (Suddendorf and Corballis 2007): information deriving from experience is encoded and stored not in the service of enabling us to reconstruct representations of past events similar to those that we entertained when we experienced the events in question (that is, to remember those events) but rather in the service of enabling us to construct representations of events that we might experience in the future.

[3] Note, however, that there is some recent debate over the claim that the content of a memory must come from the past (McCarroll 2020; Michaelian forthcoming; Openshaw forthcoming).

This idea has been the target of recent criticisms (Robins 2023; cf. Mahr 2023), but it is stronger than the idea that is most directly relevant here, which does not involve the claim that information is encoded and stored for the purpose of enabling us to imagine the future—or, indeed, any claim about the function of memory. This more modest idea is that episodic memory pertains to the future in the sense that remembering the past is not the *natural kind* on which research and theorizing should focus and that the relevant kind has as much to do with the future as it does with the past.[4] The idea is inspired by mental time travel research, which, by revealing wide-ranging and deep commonalities—some of which are reviewed below—between episodic remembering and episodic future thinking, strongly suggests that these two cognitive processes are activities of a single system that is designed to generate representations of either past or future events.[5] Remembering may be, by definition, about the past. But, if this idea is right—and it might be right regardless of whether the function of the relevant system is directed primarily at the past or primarily at the future—this is the only interesting difference between remembering and future thinking (which, of course, is, by definition, about the future). The suggestion, in short, is that the process that matters for research and theorizing—the relevant natural kind—can be trained either on the past or on the future and that, given that generating representations of future events is a matter of imagining, remembering (generating representations of past events) itself must be understood as having an imaginative character.

Indeed, if De Brigard (2014) is right, then episodic memory must be understood as having an imaginative character not just because it is linked to episodic future thought but also because it is linked to *episodic counterfactual thought*. Sometimes, when one engages in

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[4] A natural kind is one that "carves nature at its joints"—in other words, one that supports induction, in the sense that studying certain instances of a kind enables one to make inferences about other instances of the kind (Quine 1969).

[5] Some, such as Addis (2020), take the relevant system to traverse not only temporal and modal dimensions but to also produce simulations involved in mindreading and narrative comprehension.

past-oriented mental time travel, one sets out to imagine the way things actually went; in such cases, one is engaged in episodic remembering. Often, however, one sets out to imagine the way things might have gone; in such cases, one is engaged in episodic counterfactual thinking. On De Brigard's view, episodic memory, episodic future thought, and episodic counterfactual thought are activities of a single system designed to generate representations of either past or future events and either actual or counterfactual events. Since the future is epistemically indeterminate regardless of whether it is metaphysically determinate, the actual/counterfactual distinction does not get a grip with respect to future-oriented mental time travel. As Dalla Barba (2002) points out, however, there may be an important distinction between instances of future-oriented mental time travel in which the subject imagines probable possible events (events that are likely to occur) and cases in which he imagines improbable possible events (events that are possible but unlikely to occur).

The idea that matters here, then, is that—bracketing episodic counterfactual thought—there is no interesting difference between episodic memory and episodic future thought other than their distinct temporal orientations. Perhaps the most impressive evidence in favour of this idea is provided by imaging studies that demonstrate the involvement in episodic memory and episodic future thought of strongly overlapping brain regions, suggesting that a single episodic construction system subserves both forms of mental time travel (Addis 2018). Additional evidence comes from a variety of other sources. Memory and future thought are organized in a similar fashion, with both past and future events being embedded in the same narrative structures (Rathbone et al. 2011). There are important phenomenological similarities between memory and future thought, as level of detail and intensity of experience vary with temporal distance in a similar manner remembering and future thinking (Schacter et al. 2012). The capacities to remember past events and to imagine future events emerge in development at roughly the same age (Perner et al. 2010). Moreover, these capacities not only come online

together, they tend to go offline together. Deficits in the ability to remember the personal past are correlated with deficits in the ability to imagine the personal future (e.g., Rosenbaum et al. 2005). Similarly, patients suffering from depression display parallel tendencies to remember the past and to imagine the future in overly general ways (Williams et al. 1996).

The empirical literature on mental time travel has led to theoretical debates situated primarily within psychology. Psychologists have, for example, asked whether nonhuman animals are capable of engaging in mental time travel or even in episodic remembering (see entry Episodic Memory in Animals). It has also led to a number of more purely philosophical debates. Philosophers have, in particular, asked whether mental time travel research implies that remembering does not presuppose a *causal connection* with what is remembered and whether it indeed suggests what it appears to suggest, namely, that there is no interesting *discontinuity* between memory and future thought.

3 Philosophy of memory

These two debates—the causalism-simulationism debate and the continuism-discontinuism debate—are discussed in sections 3.1 and 3.2, respectively. In view of its complexity, considerably more space is devoted to the continuism-discontinuism debate.

3.1 Causalism and simulationism

According to *the causal theory of memory* (Martin and Deutscher 1966),[6] a subject remembers just in case he satisfies previous experience, current representation, and appropriate causation conditions:

> A subject, *S*, now remembers an event, *e*, if and only if
>
> > *S* experienced *e* when it occurred;

[6] For a range of recent formulations of the causal theory, see Bernecker (2008, 2010); Debus (2010); Michaelian (2011a); Robins (2016); Perrin (2018, 2020); Werning (2020); Langland-Hassan (2023); Sutton and O'Brien (2023). See also Fernández' (2019) functionalist theory, which departs in important respects from causalism but nevertheless assigns an important role to causation.

S now represents *e*;

S's current representation of *e* is appropriately causally connected to *S*'s previous experience of *e*, where an appropriate causal connection is one that is sustained by a memory trace originating in *S*'s experience of *e*.

Like causalists, simulationists accept the current representation condition, but they reject both the previous experience condition and the appropriate causation condition, with the debate so far focussing primarily on the appropriate causation condition and, specifically, on its necessity.

Impressed by the commonalities reviewed above between episodic remembering and episodic future thinking, Michaelian (2016b) takes mental time travel research to have demonstrated that these processes are carried out by the same episodic construction system. Episodic future thinking cannot and therefore does not involve an appropriate causal connection between the imagined event and the subject's current representation of it. Episodic remembering, Michaelian argues, as a product of the same system, can but need not always involve an appropriate causal connection between the remembered event and subject's representation of it. Michaelian thus takes mental time travel research to imply that appropriate causation is not necessary for remembering. What is necessary, according to the *simulation theory of memory* that he endorses,[7] is merely that the subject's current representation be produced by a properly functioning (and hence reliable) episodic construction system:

S now remembers *e* if and only if

S now represents *e*;

[7] For simulation theories that do not take an explicit stand on the necessity of appropriate causation, see Shanton and Goldman (2010) and De Brigard (2014).

> *S*'s current representation of *e* is produced by a properly functioning and hence reliable episodic construction system that aims to produce a representation of an event belonging to *S*'s personal past.

Simulationism has been the focus of direct attacks by causalists (e.g., Robins 2016, 2019; Bernecker 2017, 2023; Perrin 2021; Werning 2020; McCarroll 2020; Langland-Hassan 2022; Rivadulla Duró forthcoming), and simulationists have responded to these (Michaelian 2016a, 2020, 2023). But the causalist-simulationist debate has also triggered a debate regarding the continuity of episodic memory and episodic future thought, a debate that, on at least some views, turns out to be independent of the causalism-simulationism debate. It is to this continuism-discontinuism debate that we now turn.

3.2 Continuism and discontinuism

Continuism refers to the idea, discussed above, that there is no interesting difference—no difference in kind—between episodic memory and episodic future thought other than their distinct temporal orientations. *Discontinuism* simply refers to the negation of this claim, that is, to the idea that there is a difference in kind between episodic memory and episodic future thought other than their distinct temporal orientations (Perrin 2016). Though discontinuism is intuitively far more plausible than continuism, there is, as noted above, impressive empirical evidence for continuism. That being said, the evidence is far from univocal, and an empirical case can also be made for discontinuism.

Though imaging studies provide evidence for continuism, they also provide some evidence for discontinuism, as they indicate that imagining is more cognitively demanding than remembering and draws on additional brain regions (Schacter & Addis 2007) and demonstrate that impairment of certain regions affects future thought but not memory (Berryhill et al. 2010). Indeed, some researchers have argued that two subsystems can be distinguished within the system responsible for mental time travel (Addis et al. 2009), while

others have argued that imagining future events, in contrast to remembering past events, relies on conceptual knowledge to provide a scaffolding for the integration of episodic details (Irish et al. 2012). Moreover, there is evidence that remembering past events involves richer and more vivid detail than does imagining future or past events (De Brigard & Giovanello 2012). The emotional valence of remembered and imagined events displays a similar discrepancy, with the latter being characterized by a greater positivity bias than the former (Rasmussen & Berntsen 2013).

In short, while the empirical evidence may favour continuism, it is not decisive. In an attempt to resolve the debate, philosophers have therefore turned to more theoretical considerations, looking at metaphysical and epistemological arguments for continuism and discontinuism. Discontinuists have also recently sought to reorient the debate in a manner that may end up favouring their position, arguing that the debate should focus not on the relationship between memory and imagination understood as *processes*, as it has done so far, but rather on the relationship between memory and imagination understood as *attitudes*. Section 3.2.1 looks at attitudinal (dis)continuism; sections 3.2.2 and 3.2.3, respectively, look at metaphysical and epistemological forms of processual (dis)continuism.

3.2.1 Attitudes

Discontinuists tend to emphasize the factivity of the verb "to remember": it is widely accepted that, when one says that one remembers an event, one implies that that event actually occurred (Huddleston and Pullum 2002; Vendler 1980; Bernecker 2010). They also argue that memory differs from imagination with respect to factivity: whereas one arguably cannot remember an event that did not occur, there is nothing to prevent one from imagining an event that did not (and will not) occur. There is a real possibility, however, that the factivity of memory is a merely linguistic phenomenon—that is, that, while the verb "to remember" is factive, in that

one cannot claim to remember an event without implying that that event occurred,[8] the memory process itself is not, in that there is nothing to prevent one from having a genuine memory of an event that did not occur. In particular, there is ample empirical evidence suggesting that the same process may be at work regardless of whether its output is accurate and hence that the category of genuine memory will include many instances of inaccurate memory (De Brigard 2014; Michaelian 2016b). Many genuine memories, in other words, may represent events that did not occur—remembering can get things wrong without thereby ceasing to be remembering. Processual continuism might thus seem to have an edge over processual discontinuism.

Responding to this sort of continuist attack, Robins (2020) attempts to shift the terms of the debate in a manner that she takes to favour discontinuism. Philosophers generally hold that any given mental state involves both a content and an attitude. For example, when one believes that the Olympics will take place in Paris in 2024, one's mental state involves a specific content, namely, the proposition that the Olympics will take place in Paris in 2024, and a specific attitude, which can be characterized, roughly, as a form of acceptance. When one desires that the Olympics take place in Paris in 2024, one's mental state involves the same content but a different attitude. What Robins suggests is that the continuism-discontinuism debate ought to be understood as concerning the relationship between memory and imagination understood as mental states—and, specifically, the relationship between the attitudes involved in those mental states—rather than the memory and imagination processes that produces those mental states as their outputs. If Robins is right, remembering requires more than merely entertaining a representation of an event: it requires adopting a certain attitude towards the represented event. That attitude can be characterized, roughly, as that of

[8] On some views, indeed, one cannot claim to remember an event without implying that one experienced the event when it occurred and that one's current representation of the event is caused by one's experience of it. See Mahr and Csibra (2018); Craver (2020).

taking the event to have occurred in the past. (Hence the factivity of "to remember".) Imagining, in contrast, clearly does not require one to take the event that one represents to have occurred in the past or to be such that it will occur in the future. Thus, just as the mental states of believing and desiring involve distinct attitudes, remembering and imagining, understood as mental states, involve distinct attitudes. Attitudinal discontinuism would thus seem to have an edge over attitudinal continuism.

There are at least two ways in which continuists might reply to Robins. One is to refuse her attempt to shift the terms of the debate, arguing that, precisely because it is clear that there is an attitudinal discontinuity between remembering and imagining, it is a mistake to construe the continuism-discontinuism debate as concerning remembering and imagining understood as mental states (Langland-Hassan 2023). Another is to argue that, even if the debate is construed as concerning remembering and imagining understood as mental states, it is far from clear that discontinuism is right. Sant'Anna (2021), for example, discusses a well-known thought experiment by Martin and Deutscher (1966) in which a painter paints a scene that he takes never to have occurred but that turns out to be one that he experienced in the past. Intuitively speaking, the painter remembers the scene. But, if he does, then there cannot be a sharp attitudinal discontinuity between remembering and imagining.

It remains to be seen whether the continuism-discontinuism debate will take the attitudinal turn recommended by Robins and, if so, what the consequences of taking that turn will be. Most debate so far has focussed on processual (dis)continuism, which come in metaphysical and epistemological flavours.

3.2.2 Metaphysics

The metaphysical debate can usefully be framed by considering the potentially representational or intentional character of memory. There is disagreement over this character, just as there is disagreement over the representational character of perception. Indeed,

concepts and arguments from the longstanding debate between *representationalists* and *relationalists* about perception have recently begun to have an impact on the debate in philosophy of memory.[9]

According to representationalism, perceptual experiences are (like beliefs or desires) examples of *intentionality*. Intentionality is the capacity for a mental state to be about or directed on something in a way that does not entail its existence. For representationalists, perceptual experiences are representations that are about things because they have content. For example, an experience may have content to the effect that there is a red apple on one's desk. In the good case, this content is accurate, and one is perceptually aware of a particular red apple. But bad cases are possible: one could presumably undergo a subjectively indistinguishable hallucination. In that case, one's experience still has content to (more or less) the same effect, but one is not perceptually aware of any apple. In this way, perceptual experiences are occasions for perceptual awareness even if, qua instances of that mental kind, they are not fundamentally instances of such awareness. Similarly, according to representationalism about memory, remembering is fundamentally representational, in the sense that remembering is a relation to contents concerning past events (see, for example, Fernández 2019).

Representationalism about memory might be taken to align either with discontinuism or with continuism. However, exactly, they are to be understood, representations can presumably be stored and retrieved. Representationalism thus aligns naturally with a *transmissionist* view of memory and, indeed, with the causal theory of memory. According to transmissionism, remembering requires that explicit content be stored by discrete, persisting vehicles (i.e., memory traces) between encoding and retrieval (Michaelian & Robins 2018).

[9] See Barkasi and Sant'Anna (2022) for background.

On a causalist-representationalist approach, one initially perceives an event, where perceiving is a matter of representing. One's representation of the event is then stored in the form of a trace.[10] One then remembers the event by retrieving the trace, where remembering is, again, a matter of representing. So if, on the one hand, the emphasis in this causalist-representationalist picture is placed on the transmission of representational content—that is, on the causal connection between the perception and the memory—then we will be led to endorse discontinuism, for the straightforward reason that no such transmission is involved in the case of episodic future thought: episodic future thoughts, like episodic memories, may be representations based on traces; unlike episodic memories, they are not based on traces that originate in perception of the represented events, since the events in question have not previously been perceived by the subject. If, on the other hand, the emphasis is placed not on the transmission of representational content but instead simply on the representational character of remembering, or if the causalist-representationalist approach is rejected in favour of a simulationist-representationalist approach, then we will be led to endorse continuism, for the reason that, if episodic remembering is a matter of representing, then so, presumably, is episodic future thinking.

According to relationalism about perception, perceptual experiences are fundamentally relational: they are constituted by (non-intentional) relations of conscious awareness to one's environment. Similarly, according to relationalism about memory, instances of remembering are fundamentally relational: they are constituted by (non-intentional) relations of conscious awareness to some past event(s) (see, for example, Debus 2008; Aranyosi 2021; Moran 2022). While it may in principle be possible coherently to combine relationalism and continuism, relationalism about memory aligns most naturally with discontinuism—since, intuitively

[10] Not all forms of causalism take traces to have representational content; see, for example, Werning (2020) and Perrin (2020).

speaking, we do not, in episodic future thinking, enjoy the same sort of direct contact with events as we do in episodic remembering—and thus is a potential source of support for the latter. Relationalism nevertheless faces serious challenges.

First, there is what has come to be known as the "contemporality problem" (Aranyosi 2020; Bernecker 2008; Sant'Anna 2022; Schirmer dos Santos 2018). If relationalism is right, then past events are constitutive parts of present episodic memories. On some views of the metaphysics of time, however, an event no longer exists (in the atemporal sense) once it is past. Even on views which do recognise the existence of the past, it is difficult to see how a mental state that exists at a given time might have as a constitutive part an entity that does not exist at that time. (Note that an analogous problem does not arise in the case of perception, since—setting aside difficult cases such as the perception of distant stars—what one perceives exists at the time at which one perceives it.) Appealing to the causal theory, relationalists might counter that an episodic memory may involve a direct relation to the remembered event in virtue of the causal connection between the memory and event (Debus 2008; Moran 2021). Once a causal relationship between the memory and the event is in the picture, however, it is less clear what reason there is to posit a constitutive relationship between them. If the motivation for relationalism is to capture something about the phenomenal character of remembering, this might in turn lead to problems capturing the phenomenal *difference* between perceiving and remembering (for a defence of representationalism about memory along these lines, see Martin (2019)).

Second, there is a challenge pertaining to memory errors. The problem here is analogous to the problem posed by hallucination for relationalism about perception. In principle, a visual hallucination might be subjectively indistinguishable from a successful perception. Representationalism can explain this subjective indistinguishability by pointing to a factor common to the visual hallucination and the successful perception, namely, a

representation. Relationalism, in contrast, since it is unable to appeal to this factor, has difficulty explaining what hallucination and successful perception have in common. Indeed, relationalists are typically led to hold that there is a fundamental difference between hallucination and successful perception—that is, that they are mental states of fundamentally different kinds, a position known as "disjunctivism". Analogously, a false memory, such as a confabulation, might be subjectively indistinguishable from a successful memory, and, because relationalism has difficulty explaining what these two mental states have in common, relationalists are led to endorse a form of disjunctivism about memory. Though there have been attempts to defend it, disjunctivism is frequently held to be an intuitively unattractive view (Aranyosi 2020; Bernecker 2008; Debus 2008; Michaelian 2016b; Moran 2021; Sant'Anna 2022; Schirmer dos Santos 2018). While there have been defences of relationalism about perceptual experience that do not entail disjunctivism (e.g., Byrne & Manzotti 2022), these face problems (Beck 2021), and hopes for an analogous move in the case of remembering are underexplored but dim.

Overall, then, relationalism appears not to be an especially appealing position and hence can provide little support for discontinuism.

3.2.3 Epistemology

It is surprising, given that memory is clearly a central source of knowledge, that there is relatively little work on the epistemology of memory.[11] It is likewise surprising, given that philosophers of memory have focussed primarily on episodic memory, that there is more work on the epistemology of semantic memory than there is on the epistemology of episodic memory (Sakuragi 2013).[12] But it is unsurprising that there is less work still on the epistemology of mental time travel (including both episodic memory and episodic future

[11] See Senor (2019) and Frise (2023a) for introductions to the epistemology of memory.
[12] See Frise (2023b) and Senor (2023) for recent exceptions.

thought), for epistemologists have tended both to assume that there is an important epistemological discontinuity between episodic memory and episodic future thought and to be sceptical about the possibility that episodic future thought might be a source of knowledge at all.

On the one hand, epistemologists have tended to assume that memory is a purely preservative source of knowledge. Memory is often taken, in epistemology, to work the way testimony works (or at least seems to work).[13] When one receives testimony from a speaker, one may thereby come to know what the speaker knows, but one cannot come to know more than what the speaker knows. Similarly, when one remembers—with memory understood as being analogous to testimony from one's past self—one cannot come to know more than what one's past self knew. If this view is right, there is relatively little to say about the epistemology of memory: one initially acquires a piece of knowledge by justifiably forming a true belief on, for example, the basis of experience; memory then stores this belief, adding neither to its content nor to its justification. Moreover, if this view is right, then a form of discontinuism would seem to follow. Even if episodic future thought can be a source of knowledge, it cannot be a preservative source of knowledge (simply because one has not yet experienced events that lie in the future), in which case there is an important epistemological discontinuity between episodic memory and episodic future thought: the former is epistemically preservative; the latter—if it is capable of producing knowledge—is epistemically generative. On the other hand, epistemologists have tended to be sceptical about the possibility that episodic future thought, among other forms of imagination, is a source of knowledge. Again, this leads to a form of discontinuism: if episodic future thought cannot be a source of knowledge, then there is—assuming that episodic memory can be a source of

[13] See Gelfert (2014) for an introduction to the epistemology of testimony. See Lackey (2010) for criticism of the standard view of the workings of testimony as an epistemic source.

knowledge—an important epistemological discontinuity between the two forms of episodic thought.

Both of these views—that memory is a purely preservative source of knowledge and that future thought is not a source of knowledge at all—can, however, be challenged. Beginning with the first view, there has, since Lackey (2005), been a shift away from *preservationism* in the philosophy of memory, with *generationism* gradually emerging as the dominant view. A variety of arguments have been responsible for this shift. Lackey (2005) argues that defeaters for a belief's justification (that is, factors that counter that justification) can come and go while the belief is stored in memory, with the result that a belief that was overall unjustified when first formed can be overall justified when retrieved. Lackey further argues, appealing to cases of inattentive remembering, that memory can store content that has not yet been endorsed by the subject, with endorsement—and belief formation—happening at retrieval, with the result that memory can generate new belief and thus new justification. (See also Boyle 2019.) Michaelian (2011a) argues, appealing to psychological research on constructive memory, that memory can generate not only new belief but also new content, with the result, again, that memory can generate new justification. And Bernecker and Grundmann (2019) argue that memory can generate new justification not by generating new content but rather by eliminating old content: because less detailed representations are more likely to be accurate, the forgetting of details that is inevitably involved in remembering tends to increase the likelihood of accuracy and hence the level of justification of a memory belief. If these arguments are on the right track, then episodic memory, like episodic future thought, is a generative epistemic source, undermining one line of argument for discontinuism. Turning to the second view, the attractiveness of continuism is reinforced by recent arguments like that proposed by Miyazono and Tooming, who attempt to show both that imagination, including imagination of future events, can be seen as generating justification because of the

ways in which it is constrained when generating new content (Miyazono & Tooming forthcoming) and that memory can be seen as generating justification for the same reason (Tooming & Miyazono under review). This and other recent approaches suggest that there is much to be gained by treating the epistemology of episodic memory as being a special case of the epistemology of mental time travel.

4 Memory studies

The (dis)continuism debate is ongoing, and we can assume that new arguments and counterarguments will be forthcoming on both sides. But regardless of whether and how the debate will eventually be resolved, all concerned now grant that remembering the past is tightly related to imagining the future in a way that had not been taken into account in earlier philosophical discussions. This final section discusses the potential implications of the relationship between memory and imagination for the interdisciplinary field of memory studies.

Given the range of disciplines involved in the field, there is a question about whether memory studies researchers—some of whom are philosophers, more of whom are psychologists, and more still of whom are based in other humanities and social science disciplines—are all studying the same object. Some of those researchers—especially those based in philosophy and psychology—are interested primarily in the form of memory that has so far been at issue in this entry, namely, *individual memory*, and focus on how individuals remember their personal pasts. Most, however, are interested in *collective memory* and focus on how groups remember their shared pasts (see entry Collective memory).[14] The question, then, is whether those of us who focus on individual memory and those of us who focus on

[14] A comparison to illustrate this difference in emphasis: the *Routledge Handbook of Philosophy of Memory* (Bernecker & Michaelian 2017), with nearly fifty chapters, includes only a single chapter on collective memory; the *Routledge International Handbook of Memory Studies*, with forty chapters, accords correspondingly little space to individual memory (Tota & Hagen 2016).

collective memory are all studying the same thing: is collective memory memory? Let us refer to this as the *mnemicity* question.

The answer that we give to the mnemicity question may depend in part on the conception of memory that we adopt. The mental time travel conception, in particular, would appear to imply a negative answer to the question. There have admittedly been several attempts to understand collective memory as being, like individual memory, a form of mental time travel, that is, to understand groups as being, like individuals, capable of engaging in future thought (Merck, Topcu & Hirst 2019; Michaelian & Sutton 2019; Szpunar & Szpunar 2016). These attempts are not, however, particularly promising—not because the idea that groups might think about the future is especially implausible but rather because the idea that they might think about either the future or the past in the particular manner that is at issue in mental time travel is implausible. Philosophers have traditionally been sceptical with respect to the attribution of memory to groups. This scepticism is grounded in a more general scepticism with respect to the attribution of minds to groups (Wilson 2005, 2018). Attributions of memory arguably need not entail broader attributions of mind (Michaelian & Sutton 2017), and it might in principle be reasonable to attribute some forms of memory to groups. Attributions of memory understood specifically as mental time travel, however, would appear to entail attributions of mind. And scepticism would indeed seem to be in order here, for, given the involvement in individual mental time travel of autonoetic consciousness, a form of phenomenal consciousness (Perrin & Rousset 2014; Teroni 2017), attributions of memory understood as mental time travel would seem to suggest attributions not just of mind but of phenomenal consciousness. While the idea of collective phenomenality is not outright incoherent (Schwitzgebel 2015), it is highly unlikely that there is "something it is like" for a society (as opposed to the individuals who make it up) to mentally travel in subjective time

(cf. Pettit 2003; List 2018). If memory is a form of mental time travel, then, collective memory is unlikely to be memory.

The consequences for memory studies of a view on which collective memory is not memory are not immediately obvious. One might initially suspect that the view lends support to a pessimistic vision on the future of the field, for the straightforward reason that, if the view is right, memory studies lacks a coherent object of study. Such a vision contrasts with other, more optimistic views. Roediger and Wertsch (2008), for example, say that

> [t]ime will tell whether a unified science of memory is possible; old habits die hard, and many scientists feel that their approach to the subject (about memory or any other topic) is the one true path. Still, the effort is worth making. […] We view the broader field of memory studies as in a somewhat similar, although less formally developed, state as the science of memory. […] We do not see memory studies as developing into a science of memory, certainly not in the short term, but we can hope for a more systematic study of the topic. (11)

Brown et al. (2009), while expressing somewhat less optimism, continue to treat memory as a coherent object of study:

> Given the enormous range of memory interests and methodologies used to explore them, we suspect that "memory" as the object of a field of studies will not fit neatly into a single definition. Nor would it be productive to try to construct one. (119)

> [R]esearchers from different disciplinary backgrounds are interested in divergent aspects of memory. For example, psychologists have little interest in how cognitive processes and representations in the mind relate to conceptualizations of memory in buildings and artifacts. And, sociologists are not compelled to study neurological pathways that inhibit remembering. (121)

In fact, the view that collective memory is not memory may lend support to a position intermediate between these two extremes. If there is a fundamental difference between individual and collective memory, then it is indeed a mistake to attempt to organize a field of research around memory, where memory is defined so as to include both individual and collective memory. But collective memory may constitute a coherent object of study even if "memory" does not: if memory is understood as a form of mental time travel, then collective memory is not memory, but that does not mean that the collective phenomenon that unfolds when groups "remember" together is not worthy of investigation. Given the challenges involved in answering any such general question in social ontology (Epstein 2018), the question of the nature of this phenomenon should keep memory studies researchers in business for many years to come.

5 Summary

This chapter has endeavoured to introduce the basics of mental time travel research and to review the implications of that research both for the philosophy of memory and for memory studies. The implications in both cases are dramatic: mental time travel research threatens to upturn traditional views on the role of causation in memory, the relationship between memory and imagination, and the nature of memory knowledge, and it suggests that memory studies might ultimately need to reconceptualize its own object of study. Philosophers and memory studies researchers would thus do well to take mental time travel research into account.

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Cross-references

Collective memory

Episodic memory

Episodic memory in animals

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