

Mental time travel and the philosophy of memory

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Abstract

The idea that episodic memory is a form of mental time travel has played an important role in the development of memory research in the last couple decades. Despite its growing importance in psychology, philosophers have only begun to develop an interest in philosophical questions pertaining to the relationship between memory and mental time travel. Thus, this paper proposes a more systematic discussion of the relationship between memory and mental time travel from the point of view of philosophy. I start by discussing some of the motivations to take memory to be a form of mental time travel. I call the resulting view of memory the *mental time travel view*. I then proceed to consider important philosophical questions pertaining to memory and develop them in the context of the mental time travel view. I conclude by suggesting that the intersection of the philosophy of memory and research on mental time travel not only provides new perspectives to think about traditional philosophical questions, but also new questions that have not been explored before.

1 Introduction

The idea that episodic memory is a form of mental time travel has played an important role in the development of memory research in the last couple decades. Mental time travel, according to Suddendorf and Corballis

(1997), “comprises the mental reconstruction of personal events from the past (episodic memory) and the mental construction of possible events in the future” (133). “The real importance of mental time travel”, they add, “applies to travel into the future rather than into the past; that is, we predominantly stand in the present facing the future rather than looking back at the past” (Suddendorf and Corballis 1997: 147).

Traditionally, memory has been taken to be primarily about the past, in the sense that it allows us to recall things that happened. However, the suggestion that episodic memory is just a form of mental time travel challenges this idea, for “the primary role of mental time travel into the past is to provide raw material from which to construct and imagine possible futures” (Suddendorf and Corballis 2007: 302). These considerations raise a number of important philosophical questions. A first relevant question refers to whether memory requires an appropriate causal connection to past experiences or events. Since Martin and Deutscher (1966), it has been standard to assume that remembering requires such connection (see, e.g., Bernecker 2008; Debus 2008; Michaelian 2011; Robins 2016b). A second relevant question is whether episodic memory can be a source of knowledge of the past (see Debus 2014; Michaelian 2016b). Since mental time travel into the past, or episodic memory, is in the service of providing raw material to simulate future scenarios, it is not clear whether or under what conditions it can provide us with reliable information about past happenings. A third and more general question refers to the relationship between memory and other forms of mental time travel, such as imagining future events. Because both are a result of similar cognitive capacities, the question of whether they belong to the same metaphysical kind becomes central (see Perrin and Michaelian 2017)

These and other questions have attracted attention from philosophers concerned with memory (see, e.g., De Brigard 2014; Debus 2014; Michaelian 2016b; Perrin 2016). In this paper, I will explore some of the implications that the *mental time travel view of memory*, as I will refer to it, has to the philosophy of memory. I will start by discussing some motivations to consider episodic memory as a form of mental time travel. Subsequently, I will explore the implications of this idea to the philosophy of memory.

2 Episodic memory and mental time travel

Before we discuss the relationship between episodic memory and mental time travel, it will be helpful to first clarify what *episodic memory* is. The term was initially introduced by Endel Tulving (1972), and roughly speaking, it corresponds to the memory system responsible for receiving and storing “information about temporally dated episodes or events, and temporal-spatial relations among these events” (385).¹ So, when you episodically remember an event, your memory contains information about the *what*, the *where*, and the *when* associated with that event. That is the so-called what-when-where view of episodic memory, or simply the *www view*. Episodic memories, on Tulving’s initial formulation, contrast with semantic memories. Those refer to memories about general facts that were not necessarily experienced. For example, when I remember that the Second World War ended in 1945, I am semantically remembering a fact by using language. The semantic memory system, Tulving says, refers to the “organized knowledge a person possesses about words and other verbal symbols, their meanings and referents, about relations among them, about rules, formulas, and algorithms for the manipulation of these symbols, concepts, and relations” (1972: 386). Thus, in contrast to episodic memories, semantic memories do not require the previous experience of the relevant events.

The important thing to note about this definition of episodic memory is that it is primarily based on the kind of information that is processed and stored. And, because of this, it faces some important problems. One such problem refers to the fact that some semantic memories possess the relevant “www” information; for example, my memory that the Waterloo battle was fought in 1815. Thus, it is not entirely clear whether episodic memories and semantic memories can be distinguished solely on the basis of the information possessed by them. Another problem refers to the phenomenological dimension of episodic memories. Remembering a particular event that was previously experienced seems to involve more than the retrieval of informa-

¹The term *memory* is ambiguous and it might refer to different things, such as one’s *capacity* to remember (e.g., “John has a good memory”), the *cognitive system* responsible for producing memories (e.g., “Your memory is not working well”), or the outputs of that cognitive system, namely the *mental states* that we call “memories” (e.g., “I have a memory of my tenth birthday party”). For my purposes, I use the term to refer both to the cognitive system responsible for producing memories as well as to the individual mental states produced by it.

tion. Episodically remembering seems to have a distinctive phenomenology, involving a "feeling of pastness" (Russell 1921: 161–62) and a "feeling of warmth and intimacy" (James 1890). In other words, besides the information carried, episodic memories seem to make reference to the past ("feeling of pastness") and to belong to subjects in a unique way ("feeling of warmth and intimacy"). For example, when I remember my tenth birthday party, the memory not only presents the event as having occurred in the past, but also as being "mine", in the sense that I seem to *own* the memory.

These and other difficulties have led Tulving to reformulate his first characterization of episodic memory. Later on, he proposed a definition that took into account the phenomenological aspects described above. According to him, besides carrying "www" information, episodic memories involve a unique kind of consciousness, which he called *autonoetic consciousness* or simply *autonoesis* (see Tulving 1985, 2005). Autonoesis, Tulving says, "refers to the kind of conscious awareness that characterizes conscious recollection of personal happenings"; that is, it is what makes subjects "aware that the present experience is related to the past experience in a way that no other kind of experience is" (Tulving 2005: 15).²

The definition of episodic memory as involving autonoesis is very important. Because "[t]he act of remembering [...] is characterized by a distinctive, unique awareness of reexperiencing here and now something that happened before, at another time and in another place" (Tulving 1993: 68), remembering makes subjects "capable of *mental time travel*: [...] [a] person can transport at will into the personal past, as well as into the future" (67, my emphasis). So, besides being responsible for the unique feeling associated with episodic memories, autonoesis gives subjects a more general capacity to "travel" in subjective time. This is not difficult to motivate on phenomenological grounds. As Klein (2015) notes, there is a "perceived temporal sym-

²Although initially characterized in phenomenological terms, there is no agreement as to what autonoesis is exactly. Some have argued, for instance, that autonoesis has an important epistemic value. For example, Dokic (2001; 2014) holds that episodic memory carries a "feeling of knowing", in the sense that it tells subjects that it originates in their past experiences. Fernández (2016) defends a similar view, but he builds autonoesis into the content of memory rather than in its phenomenology. Quite recently, Mahr and Csibra (2017) have proposed a "communicative" account of the function of episodic memory, in which autonoesis is viewed as being responsible for "[delineating] which of our claims about the past we can assert epistemic authority". Despite these important developments, I shall take for granted the more standard idea that autonoesis is mainly a phenomenological feature of episodic memory.

metry between movements toward (future) and away (past) from the present” (21). To illustrate, imagine that you are thinking about your holidays at the beach next year. Similarly to episodic memories, you have the feeling that the thought is owned by you, in the sense that the holidays are yours and not someone’s else. However, because the event is something that *can* happen, it is presented to you as being “future” to your current thought. Thus, it looks like we can “relocate” ourselves to the future in the same way that we can do it in relation to the past.

The capacity endowed to us by auto-noesis to travel both to past subjective time and to future subjective time consists in an important motivation to take episodic memory to be just one form — among others — of *mental time travel*. Despite giving emphasis to phenomenological considerations above, there are also good empirical reasons to endorse this view. In a recent survey, Perrin and Michaelian (2017) discuss similarities between episodic memory and future mental time travel found in different domains. In developmental studies, for example, it has been shown that the children’s capacity to remember the past and imagine the future arise at approximately the same time (Suddendorf and Busby 2005; Atance 2008; Fivush 2011). In studies with patients with memory impairments, it has been found that deficits in memory incur in similar deficits in the ability to think about future scenarios (Klein et al. 2002; Rosenbaum et al. 2005; Hassabis et al. 2007). Moreover, imaging studies also show that there is a strong overlap in the brain regions associated with episodic memory and future mental time travel (Addis et al. 2007; Schacter et al. 2007, 2012).

I will not attempt to review the relevant literature here.³ I shall, instead, point out to an important development of the *mental time travel view of memory*. More recently, some researchers have suggested that the primary function of mental time travel is not to allow us to remember the past. Suddendorf and Corballis (1997), for example, argue that “[t]he real importance of mental time travel applies to travel into the future rather than into the past; that is, we predominantly stand in the present facing the future rather than looking back at the past” (147). In a similar spirit, De Brigard (2014) says that “remembering is a particular operation of a cognitive system that permits the flexible recombination of different components of encoded traces into representations of possible past events [...] *in the service of* constructing

³For a detailed review concerned with philosophical questions, see Perrin and Michaelian (2017).

mental simulations of possible future events (158, my emphasis). And, more recently, Michaelian (2016b) says that “remembering is not different in kind from other episodic constructive processes” (103), thus “[w]hat it is for a subject to remember [...] is for him to imagine an episode belonging to his personal past” (111).

The idea that the primary function of mental time travel is not to remember the past, but to imagine the future, has important consequences. One such consequence is that our common sense conception of memory, according to which memory’s function is to store information of what happened, seems to be threatened. It is compatible with the mental time travel view that our representations of the past be inaccurate as long as they are beneficial for future actions. So, as De Brigard (2014) notes, “many ordinary cases of misremembering *should not* be seen as instances of memory’s malfunction” (158, his emphasis). This raises a further question, which is of particular interest to philosophers, about whether, and if so, how, memory provides knowledge of the past. Because the primary function of remembering is not to recover information about the past, we need a proper account of how knowledge can be formed on the basis of memory. Similarly, the mental time travel view poses important questions pertaining to the relationship between memories and the past events. The causal theory of memory, which has been predominant in philosophy for the past four decades, stipulates that remembering requires the preservation of an appropriate causal connection to past events. However, if memory is a form of mental time travel in the same way that imagination is, and “if imagining need not draw on stored information ultimately originating in experience of the relevant episode” (Michaelian 2016b: 111), there is no principled reason to say that such requirement holds for memory.

In summary, the mental time travel view of memory raises a lot of important questions for philosophers concerned with memory. In an attempt to motivate those problems, I will consider, in the next section, some implications that the mental time travel view of memory has to the philosophy of memory.

3 Mental time travel and the philosophy of memory

The mental time travel view of memory not only challenges important traditional conceptions about memory, but also offer prospects for future research on the subject. In this section, I will consider some topics that are of potential interest to philosophers of memory concerning the mental time travel view of memory. However, because the interest of philosophers on these topics is still very recent, there is not a lot of works dealing systematically with the questions that I discuss below. For this reason, rather than attempting to survey the debate, I will try to motivate some problems of potential interest.

3.1 The causal theory of memory

After the publication of Martin and Deutscher’s seminal paper “Remembering” (1966), philosophers in the analytic tradition started to develop an increasing interest in philosophical questions pertaining to memory. Martin and Deutscher proposed what is now known as the *causal theory of memory* (CTM). The CTM has been very influential and it still shapes, to a large extent, how philosophers think about memory today.⁴ However, if correct, the mental time travel view raises important concerns about the CTM.

The CTM provides us with a set of criteria to determine whether a given mental state counts as remembering or not. For the CTM, a subject S counts as remembering an event e iff:

1. S represented e in the past; (*Past representation condition*)
2. S has a current mental representation of e ; (*Current representation condition*)
3. The content of the current mental representation of e is sufficiently similar to the content of the past representation of e ; (*Content condition*)
4. There is an appropriate causal connection between the current representation of e and the past representation of e . (*Causal connection*)

⁴For a recent and comprehensive assessment of the CTM in relation to recent developments in the philosophy of memory, see Michaelian and Robins (201x).

condition)⁵

To clarify these points, consider my putative memory of my tenth birthday party. In order for me to count as remembering this event, I need to have experienced it previously. That is the *past representation condition*. Additionally, I need to be able to represent the same event in the present. That is the *current representation condition*. But my past and current representations can only be representations of the same event if their contents are sufficiently similar (the *content condition*); for example, if the contents of both representations contain members of my family and friends, a chocolate cake, etc.⁶ Finally, remembering requires that my current representation of my tenth birthday be caused, in an appropriate way, by my past representation of the same event (the *causal connection condition*). The requirement for such causal connection consists in the main novelty of the CTM. Moreover, since it is also the source of the problems that arise in the context of the mental time travel view of memory, I will focus on it more closely.

The causal condition is supposed to rule out cases that, intuitively, we do not count as remembering, but that are allowed by (1)–(3). To see this, consider the case of Kent described by Martin and Deutscher (1966):

A man whom we shall call Kent is in a car accident and sees particular details of it, because of his special position. Later on, Kent is involved in another accident in which he gets a severe blow on the head as a result of which he forgets a certain section of his own history, including the first accident. He can no longer

⁵This discussion is adapted from Bernecker (2010, ch. 1). See also Bernecker (2015, 302).

⁶Martin and Deutscher (1966) conceive of this similarity in terms of a structural analogy holding between the past representation and the current representation. They say that “the past experience must constitute a *structural analogue* of the thing remembered, to the extent to which he can accurately represent the thing” (191, my emphasis). It is not entirely clear, however, where the structural analogy is to be found. The most natural interpretation seems to be that the content of the past representation must have the same kind of structure as the content of the current representation, but they do not say anything as to what the structure of those contents are supposed to be. Another issue is that it is not clear how much “structural analogy” is required for S to count as remembering. While we do not want to require the content of the past representation to be the same as the content of the current representation, it is hard to find a principled way to determine how much similarity is required. For my purposes, I shall put these worries aside. For a related discussion, see Michaelian (2011) and Michaelian (2016b, 90).

fulfill the first criterion for memory of the first accident. Some time after this second accident, a popular and rather irresponsible hypnotist gives a show. He hypnotizes a large number of people, and suggests to them that they will believe that they had been in a car accident at a certain time and place. The hypnotist has never heard a thing about Kent nor the details of Kent's accident, and it is by sheer coincidence that the time, place, and details which he provides are just as they were in Kent's first accident. Kent is one of the group which is hypnotized. The suggestion works and [...] [Kent] believes firmly that he has been in an accident. The accident as he believes it to be is just like the first one in which he was really involved. (174)

Kent's case satisfies (1) and (2) above, as he had a past representation of the car accident and has a current representation of the same event. Moreover, it satisfies (3) too, for Kent's current representation is sufficiently similar to his past representation. Nevertheless, it seems wrong to say that Kent is genuinely remembering. The reason is that his current representation does not preserve the right kind of causal connection to his past representation. To use Martin and Deutscher's (1966) term, the past representation is not "operative" in producing the current representation. In Kent's case, the operative cause, so to speak, is the hypnotist. For the CTM, then, remembering is not only a matter of getting the details of a past experience of an event right, but also of standing in an appropriate causal relation to that experience.

Besides offering a way to rule out cases not contemplated by (1)–(3), the causal connection condition has also been used to provide a taxonomy of memory. As it stands, the CTM is an answer to the general question of what it takes for a subject to remember. However, there are more than one way in which one can successfully or unsuccessfully remember something, which requires an account of those differences. For example, it is consistent with remembering my tenth birthday party that I get some of its details wrong.⁷ I can correctly remember that my whole family was there and that the party took place at a certain location, but I can simultaneously remember, incorrectly, that I had strawberry cake. In this case, we can say that I am *misremembering* my tenth birthday party. Thus, Sarah Robins (2016b) has recently argued that, given the constructive character of memory (see

⁷Although, again, how much inaccuracy is consistent with remembering is not entirely clear. See Michaelian (2011) and note 6.

Bartlett 1995; Schacter et al. 2007, 2012; Michaelian 2011; De Brigard 2014), we need to appeal to a causal connection between past and current representations to distinguish remembering from misremembering.⁸ In a similar spirit, Bernecker (2017) has suggested that one can only distinguish between successful remembering from confabulations (see Hirstein 2005) if one requires that the former, but not the latter, preserves a causal connection to past experiences (see also Robins 2016b, 201x). The causal connection, therefore, is not only important to provide an adequate analysis of remembering, but also of the different kinds of successful and unsuccessful remembering.

The mental time travel view of memory challenges the central status given to the causal connection condition in a theory of memory. As I discussed above, on the mental time travel view, the primary function of memory is not to remember the past (see Suddendorf and Corballis 1997; De Brigard 2014; Michaelian 2016b). But, if that is the case, then it is hard to see why we should endorse the CTM. There are multiple reasons to think this. One reason is that, as Michaelian (2016b, 111) notes, because other forms of mental time travel need not have such causal connection to past experiences, there is no principled way to require it in the case of memory. This does not mean, of course, that there cannot be such connection, but only that it is not necessary.

Another reason is that, from the perspective of the mental time travel view, straightforward occurrences of remembering would be ruled out by the CTM. The causal connection allows us to preserve the intuition that, in cases such as Kent's, subjects do not count as remembering. However, intuitively we do not seem to require that *all* occurrences of remembering preserve an appropriate causal connection to past events. Consider the following case. Imagine that I experienced my tenth birthday party in the past and that I now have a putative memory of it. I remember my friends and family being there and I remember having chocolate cake. However, suppose that my current representation is not being caused by my previous representation of my tenth birthday party, but rather by two different experiences that involved the relevant elements of my current representation. In this case, the content of my current representation is partly derived from, say, my experience of my ninth birthday party, which was attended by the same individuals, and partly derived from my experience of another party that I attended, where

⁸See Michaelian (2016a) for a critique of Robins's proposal and an attempt to provide a taxonomy of memory that abandons the causal connection altogether.

there was a chocolate cake. In this case, there is no causal connection of the sort required by the CTM, but it seems too stringent to say that the subject is not remembering the relevant event only because the content of his current representation is not derived from the content of the original experience.⁹

A third reason why the mental time travel view challenges the CTM is that the latter is incompatible with the constructive character of mental time travel. Because mental time travel is in the service of simulating events to assist subjects in future interactions with the environment, it seems too restrictive to require that our representations of the past have to draw content from only one singular source. For example, in thinking about how I should act in my job interview next week, my current representation of the past will benefit more from drawing on different past experiences of job interviews than drawing on only one singular experience.¹⁰

In sum, the CTM has occupied a central position in philosophical theorizing about memory for the past fifty years. Besides providing an analysis of remembering that accounts for a wide range of cases, it provides a useful principle to conceive of a taxonomy of remembering. However, if the mental time travel view of memory is right, the centrality of the CTM might not be warranted.

3.2 Mental time travel and our knowledge of the past

One direct consequence of abandoning the causal condition can be seen in the epistemology of memory. Because the causal condition is no longer necessary to remember, there is no guarantee that the content of our current representations derive from the content of our past representations. That being the case, the question that poses itself is whether, and if so, how, we can form knowledge of what happened in the past on the basis of our current representations. Is mental time travel capable of providing such knowledge?

⁹One might argue here that, intuitively, the case above does not count as a straightforward occurrence of remembering rightly because there is no causal connection. I do not mean to dispute people's intuitions about this and other similar cases, but, as long as we want our intuitions to be compatible with what empirical research tells us about memory, this seems the most plausible way to describe them. In other words, given the *constructive* character of memory (see, e.g., [Bartlett 1995](#); [Schacter et al. 2007, 2012](#); [Michaelian 2011](#); [De Brigard 2014](#)), it is not unlikely that cases as the one described above can happen.

¹⁰See, however, [Sutton \(1998\)](#) and [Michaelian \(2011\)](#) for different attempts to provide a causal view compatible with the constructive character of memory. For a related discussion, see [Robins \(2016a; 2016b\)](#).

Before I turn to this question, it is important to distinguish between two senses in which it can be asked. On the one hand, we can ask the pragmatic question of whether memory provides us with information that, in practical contexts, allows for useful inferences about how things were in the past. Call this the *pragmatic epistemic question*. On the other hand, we can ask whether memory actually provides knowledge of the past, in the sense that it serves as grounds for our justified beliefs about it. Call this the *strict epistemic question*.

This distinction is important because a positive answer to the pragmatic epistemic question does not necessarily give us a positive answer to the strict epistemic question. It might be the case that the content of my memory of my tenth birthday party is the same or very similar to the content of the memories that other people have of this event, such that I can make useful inferences about the event in relevant contexts, but it does not follow from this that my memory allows me to know anything about this event. An answer to the strict epistemic question, in contrast, requires identifying what makes it possible that our current memories serve as grounds for our justified beliefs about the past.

The causal condition provides an answer to the strict epistemic question. Because the content of my current representation of an event is caused by my past representation of it, the causal connection makes it possible for memory to ground our knowledge of the past. Otherwise put, the beliefs that we form on the basis of memory are justified because there is an appropriate causal connection between memories and past events. However, if, as the mental time travel view suggests, this condition is not necessary for remembering, how can we explain the relationship between the content of our past and current representations?

It is not entirely clear what the alternative for defenders of the mental time travel view are here. In fact, because he is the most systematic critic of the causal condition, Michaelian (2016b) has been the only one so far to provide an explicit treatment of the question. His approach consists in adopting a broad reliabilist framework in epistemology, according to which “the epistemic status of a belief is determined by the reliability of the process that produced it” (Michaelian 2016b: 39, see also Goldman 2012). Roughly, the idea is that one is justified in holding a certain belief if that belief was produced by a reliable process. On Michaelian’s proposal, then, we can explain why memory serves as grounds for forming knowledge of the past in terms of the reliability of its underlying processes. This solution, however,

will not be appealing if one is not already inclined to a form of reliabilism. The reason is that, as Michaelian (2016b, 40) recognizes, it takes reliabilism as a starting point and then proceeds to explain *how* memory is reliable. However, if one is skeptical of the idea that reliability itself can provide an account of epistemic justification, an account of how memory is reliable will not suffice to address the strict epistemic question.

The question of whether reliabilism is a good account of epistemic justification is beyond my scope here. However, given the question at hand about how memory can form knowledge about the past, it might be useful to explore other alternatives. One possible approach might be to adopt an *eternalist* view of events (e.g., Bernecker 2008). According to eternalism, past events do not cease to exist when they become past. Eternalism is promising because it allows one to say that past events are constitutive parts of memories. To see this, consider an analogy with perception. Relationalists about perception claim that mid-sized objects are constitutive parts of perception, in the sense that I could not have a visual experience of the chair in my office if this object were not there (see, e.g., Campbell 2002; Martin 2004; Brewer 2007; Fish 2009). An important motivation for acknowledging the constitutive role played by objects in perception is that it allows one to explain how they ground our knowledge of the world (see Schellenberg 2016 for a recent discussion). Similarly, it might be argued, acknowledging the constitutive role played by past events in memories allows one to explain how they ground our knowledge of the past.¹¹

Eternalism faces important problems. It is not obvious, for example, how our memories can be constituted by events located in a different spatiotemporal location. While it makes room, at least in principle, for that relation to take place by recognizing the existence of past events, an account of how they relate to our current mental representations is still required. The problem is that it is hard to see how such an account would look like. Another problem for eternalism is that it requires us to pay a high metaphysical price to account for how remembering grounds our knowledge of the past. Because we are required to postulate the existence of past events, some might view

¹¹Debus (2008) makes the exact same point when she claims that “the Relational Account [of memory] must be true if we accept (as we should) that people can sometimes gain knowledge about the past on the basis of their [memories]” (406–7). However, her account of memory requires postulating a fundamental separation between memory and other forms of mental time travel view, which makes her view unpromising here (see Debus 2014 and section 3.4).

this solution with skepticism (e.g., [Michaelian 2016b](#), 63).

Another alternative, which I shall call the *pragmatist solution*, is to deny that the pragmatic epistemic question is different from the strict epistemic question. On such view, having knowledge about the past is simply a matter of making useful inferences about how things were back then. Whether or not we have knowledge of the past, the pragmatist will say, depends on how our memories can inform our future behavior. If memories allow for behaviors that lead to coordinated action with other individuals in relevant settings, such as discussing who attended your birthday party, or more primitively, discussing where food can be found, then that is all that is required to say that we have knowledge of the past. The pragmatist will deny, therefore, that there needs to be, necessarily, a causal connection to past representations, as long as the current representations allow for useful inferences about the past.

The pragmatist solution also faces important problems. The first problem is similar to the one raised above to reliabilism. In other words, it will only look appealing for those who are already inclined to a pragmatist view in epistemology. The second problem is that the pragmatist solution seems arbitrary, in the sense that it seems to imply that our knowledge of the past depends on what certain individuals "agree" to be the case. However, it is not clear who the relevant individuals are in each situation, or even if there is a principled way to identify them. Moreover, the focus on usefulness might lead to counterintuitive results, for a memory might be useful to guide the current behavior of different individuals without being true of the past. In other words, it is completely plausible that subjects might misremember some or all details of an event in a similar way, such that their memory reports agree with each other, but nonetheless fail to effectively describe what happened.

To conclude this part, it seems that an account of how we form knowledge of the past according to the mental time travel view might require some controversial commitments. While these commitments might take place at different domains — e.g., in metaphysics, as in the eternalist solution, or in epistemology, as in the reliabilist and the pragmatist solutions — a convincing answer to this question will inevitably require a proper motivation of those commitments.

3.3 The objects of mental time travel

The mental time travel view of memory also raises important questions about the objects of mental time travel. If memory is only one form of mental time travel, then an account of the objects of memory will inevitably depend on a more general account of the objects of mental time travel. Traditionally, philosophers have addressed the question of the objects of memory in quite some detail. Inspired by Hume (2011) and Locke (1975), *representational* or *indirect realist* views hold that the objects of memory are internal representations of events (see, e.g., Russell 1921; Byrne 2010). *Relational* or *direct realist* views, in contrast, say that the objects of memory are the past events themselves (see, e.g., Reid 2000; Laird 2014; Russell 2001; Debus 2008). Given this framework, one natural suggestion here to address the question of the objects of mental time travel would be to take one's preferred account of the objects of memory and apply it to mental time travel. However, this seems to get things backwards. On the mental time travel view of memory, the mental time travel category is more basic than the category of memory, so we first need an account of the objects of mental time travel, which will only then inform our account of the objects of memory.

The question of the objects of mental time travel has not been addressed in the literature so far. So, there are no established views about it. However, this should not prevent us from thinking about what an answer to the question might look like. One way to start addressing it is to distinguish between different forms of mental time travel. Although this is not always made explicit in discussions on the subject, there are more than one way in which mental time travel into the past and into the future can happen. Besides episodic memory, which refers to mental time travel to past events that occurred, and episodic future thinking, which refers to mental time travel to events that might occur, we also think about counterfactual events located in subjective time (see De Brigard 2014). For example, I can think about how my life would be right now if I had not gone to college. In this case, I am thinking about an event that could have happened in the past, and that would influence the present, but that is no longer possible. Similarly, I can think about how my life will be in ten years if I had not gone to college. In this case, I am thinking about an event that would be the case in the future if some other event in my past had been different. In both cases, then, I am entertaining thoughts about counterfactual situations oriented to the past and to the future.

The above suggests that an account of the objects of mental time travel needs to take into account not only episodic memory and episodic future thinking, but also forms of episodic counterfactual thought (see [De Brigard 2014](#)) directed to the past and to the future. This makes the initial question significantly harder, for now we have to explain how things that can no longer be the case can somehow be the objects of our thoughts. One promising line of investigation might be to appeal to the notion of *intentional objects*. Intentional objects, as originally introduced by Brentano ([2014](#)), are non-existent objects which are the direct objects of awareness of the mind. Although this is a promising line, no one has pursued it systematically as of yet.¹²

Another alternative might be to look at the traditional accounts of the objects of memory as starting points. While relational views have been defended more consistently in the context of memory, they do not seem to offer promising prospects for a more general account of the objects of mental time travel. The reason is that the objects of mental time travel, except for arguably the objects of memory, do not exist, which makes it impossible for us to be related to them. So, unless one is willing to commit to more controversial metaphysical views, such as the view that there are intentional objects (e.g., [Crane 2001, 2013](#)) or some form of modal realism ([Lewis 1986](#)), it is not clear whether relational views can be coherently sustained. In contrast, representational views might be more promising. Because the objects that are represented by mental time travel need not exist to be represented, there is no need to worry about the metaphysical status of those events. What is relevant to explain how we are aware of the relevant events are the existence of the representations, which would serve as proxies for the events. It is not clear, however, what the problems for a representational account of the objects of mental time travel would be. Since this question has not been explored in enough detail, it remains to be seen whether representationalism can stand up to a more detailed analysis.

3.4 The metaphysics of mental time travel

The consideration of the questions above finally leaves us in a position to consider a more general question about the metaphysics of mental time travel. As we saw, the mental time travel view of memory raises a lot of different

¹²See, however, Crane ([2001; 2013](#)) for potentially helpful discussions about intentional objects in philosophy of mind.

issues regarding the epistemology and the metaphysics of memory. But how pressing those questions are will depend on how one sees the category of memory in relation to the broader category of mental time travel. Until now, I have taken for granted that there are good reasons to accept that memory is just another occurrence of mental time travel. However, some philosophers have resisted this view. Debus (2014), for example, argues that memory and future future-oriented mental time travel — or what she calls sensory imagination — are occurrences of different kinds because there are important metaphysical dissimilarities between them.

The debate about the metaphysics of mental time travel is still very recent and, as with some of the other questions above, there are not well-established views in the literature. Despite this fact, I will follow Perrin and Michaelian (2017) here and distinguish between *continuist* and *discontinuist* metaphysical views of mental time travel. Continuists accept that the similarities between memory and other forms of mental time travel support the more general view that they are occurrences of the same kind. Discontinuists, in contrast, say that those similarities are not enough to say that memory and other forms of mental time travel are occurrences of the same kind.

Reasons for endorsing continuism vary. The general motivation, though, seems to stem from different strands of research in the empirical sciences. As I discussed in section 2, there is a great variety of empirical work that highlight important similarities between episodic memory and mental time travel. Perhaps the most distinctive motivation comes from the fact that mental time travel into the past and mental time travel into the future draw on very similar cognitive resources, which suggests that a common or “core” cognitive mechanism responsible for mental time travel will be eventually identified (Addis et al. 2007; Schacter et al. 2007, 2012). In more philosophical terms, then, we can see continuism as relying on a more naturalistic stance towards the question of the relationship between episodic memory and mental time travel. In other words, for continuists views, because there is a lot of different empirical evidence suggesting that episodic memory is just another occurrence of mental time travel, we should take this evidence seriously when thinking about the metaphysics of mental time travel.

Discontinuist views, in contrast, seem to be motivated by more general a priori considerations about the metaphysics of mental time travel. This is not to say, of course, that discontinuists simply ignore the empirical evidence

on which continuism relies.¹³ Instead, they believe that other considerations, such as whether mental time travel establishes an appropriate causal connection to the events in question, are also important to provide an appropriate picture of the metaphysics of mental time travel. Debus (2014), for example, argues that episodic memory and other forms of mental time travel are occurrences of two fundamentally distinct kinds.¹⁴ To support this claim, she says that, unlike episodic memory, other forms of mental time travel fail to put subjects in an experiential relationship with the relevant events. The notion of an experiential relationship is a technical one, which refers to the causal and spatiotemporal relationship that subjects have to the events that their thoughts are about. In episodic memory, this relationship obtains because the relevant events occurred and we can, at least potentially, draw the causal connection between the current memory and the past event. In other forms of mental time travel, in contrast, the relationship does not obtain because the relevant events do not exist.

Besides reflecting different metaphilosophical attitudes towards the same question, the dispute between continuism and discontinuism reflect different commitments taken in relation to the questions discussed in previous sections. Consider the question of whether episodic memory requires an appropriate causal connection to past events. While continuism is compatible with the CTM, it does not give the causal connection condition a central place in its metaphysical theorizing of mental time travel. For continuism, the presence (or the absence of) a causal connection reflects, at best, only a difference of degree between episodic memory and other occurrences of mental time travel. For discontinuists, however, this question is central for the metaphysics of mental time travel. The presence (or the absence of) a causal connection is sufficient to separate two mental occurrences as being of two different kinds.

The same applies to the question of our knowledge of the past and the objects of mental time travel. For continuists, like Michaelian (2016b), a proper account of how episodic memory provides us with knowledge of the past can be given by looking at the reliability of the mechanisms that produce memories, which, in turn, do not require causal connections to the past. Thus, the

¹³See, for example, Perrin (2016) for a more modest discontinuist view that takes into account the similarities highlighted by empirical research.

¹⁴Debus discusses only the relationship between episodic memory and future-oriented thinking, or sensory imagination as she calls it. However, since her argument seems to suggest that other forms of mental time travel are equally distinct from episodic memory, I shall not make this distinction here.

things that make us aware of the past events are the internal representations, which are detachable from those events. In this sense, continuists might be more inclined to adopt a representational view of the objects of mental time travel. For discontinuists, in contrast, episodic memory is capable of providing subjects with knowledge in a way that other forms of mental time travel cannot. This is because it puts us in a relationship to past events, which necessarily involves a causal connection to them, that is not possible by means of other forms of mental time travel. Thus, discontinuists might not be satisfied with a representational view of the objects of mental time travel, as representations of events can occur in the absence of causal connections to the relevant events. A direct realist or relational view of memory (see [Debus 2008](#)) will, therefore, seem more appealing for discontinuists, which Debus (2014) recognizes to be central to her discontinuist account.

4 Conclusion

The view that memory is a form of mental time travel offers exciting prospects for new research in the emerging sub-field of the philosophy of memory. Traditional views of memory, such as the causal theory of memory, and traditional questions about memory, such as how it provides knowledge of the past and what is the nature of its objects, need to be reconsidered in the broader framework of mental time travel. These questions, however, are inter-related with more general and new questions that arise only in the context of the research on mental time travel, i.e., what the objects of mental time travel are and what is the metaphysical status of those mental states. Thus, the intersection of the philosophy of memory and research on mental time travel not only provides new perspectives to think about traditional questions, but also new questions that have not been explored before.

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