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## **Remembering past experiences: episodic memory, semantic memory and the epistemic asymmetry**

Christoph Hoerl

There seems to be a distinctive way in which we can remember events we have experienced ourselves, which differs from the capacity to retain information about events that we can also have when we have not experienced those events ourselves but just learned about them in some other way. Psychologists and increasingly also philosophers have tried to capture this difference in terms of the idea of two different types of memory: episodic memory and semantic memory. Yet, the demarcation between episodic memory and semantic memory remains a contested topic in both disciplines, to the point of there being researchers in each of them who question the usefulness of the distinction between the two concepts.<sup>1</sup> In this paper, I outline a new characterization of the difference between episodic memory and semantic memory, which connects that difference to what is sometimes called the ‘epistemic asymmetry’ between the past and the future, or the ‘epistemic arrow’ of time. My proposal will be that episodic memory and semantic memory exemplify the epistemic asymmetry in two different ways, and for somewhat different reasons, and that the way in which episodic memory exemplifies the epistemic asymmetry is manifest to the remembering subject in a way in which this is not the case for semantic memory.

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<sup>1</sup> The episodic/semantic distinction originates with Tulving (1972), and has been refined by Tulving in a number of other works (Tulving, 1985, 2002; Wheeler, Stuss, & Tulving, 1997). Rival ways of carving up the domain of memories are suggested, for instance, in Bernecker (2010) and Rubin and Umanath (2015).

I will start with a brief sketch of some of the existing work on the epistemic asymmetry, before turning to the question as to how exactly the idea of the epistemic asymmetry applies in the case of memory, and whether it might apply in a somewhat different form to different kinds of memory. The latter questions are, I believe, questions of independent interest that have to date been largely ignored in the literature on the epistemic asymmetry.<sup>2</sup> However, as I will try to show, focusing on them can also help shed new light on some already existing characterizations of the contrast between episodic and semantic memory, for instance by providing the materials for fleshing out a sense in which episodic memory involves the preservation of a distinctive form of cognitive contact with events, as well as being past-directed in a way semantic memory isn't. My primary aim is to set out an agenda for work in this neglected area of research, which is why some of my claims remain fairly programmatic at this stage.

### 1. The epistemic asymmetry

Philosophers working on the metaphysics of time often speak of a number of different asymmetries or 'arrows' that time seems to exhibit: that events become successively present in the direction of the future, rather than the past (the 'arrow of time'), that entropy increases over time in the same direction (the 'thermodynamic arrow'), or that causes always precede their effects (the 'causal arrow'). The general question philosophers are typically interested in, in this context, is how these arrows might be related to one another, and in particular whether some of them might ground others in

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<sup>2</sup> An exception is Huggett (forthcoming). He approaches questions about the connection between memory and the epistemic asymmetry largely from within the philosophy of physics. My main focus will be on epistemology.

a way that reveals as illusory certain asymmetries that time appears to exhibit, in the sense that they are due not actually to the metaphysical nature of time itself, but rather to some contingent features of how things are arranged in time.<sup>3</sup>

One of the asymmetries that philosophers have also discussed in this context concerns our knowledge of the past vs. our knowledge of the future, or what is sometimes called the ‘epistemic arrow’. There is clearly some sense in which our knowledge of the past is different from our knowledge of the future. Yet, as the following quote from David Albert brings out, it can be difficult to get a more precise fix on what exactly the difference at issue comes to:

The sort of epistemic access we have to the past is different from the sort of epistemic access we have to the future. This (to put it mildly) nobody doubts. And nonetheless [...], there is a vast [...] literature nowadays about the alleged difficulty of specifying exactly *what that difference is*.

It’s often pointed out, for example, that the difference certainly does *not* consist in our having knowledge of the past but none of the future. *We do*, after all, have knowledge of the future. We know (for example, and not less certainly than we know much of what we know of the past) that the sun will rise tomorrow.

And if it’s said that we know *more* of the past than we do of the future, this seems (according to the usual way of talking) true enough, but (as it stands) not particularly informative— it seems to give us nothing at all that we

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<sup>3</sup> On the importance of this distinction, see Price (1996, ch. 1). Different ways of fleshing out this general project are also suggested, e.g., in Horwich (1987), Ismael (2016), Callender (2017), and Fernandes (forthcoming).

can reason *any further* with, nothing that (as it were) we can *sink our teeth* into.

Sometimes the focus is shifted to differences between the *methods* by which we *come* to know things about the past and the future. It's said (more particularly) that there can be such things as *records* only of the past; but this is almost always immediately followed up with whining about the perennial elusiveness of exactly what it means to *be* a 'record,' and cluelessness follows again. (Albert, 2000, p. 113)

I will discuss some of the issues alluded to in this passage in more detail in what follows. For the moment, I just want to note that what there has been to date by way of a philosophical discussion regarding the nature and source of the epistemic asymmetry has actually been conducted almost exclusively within the context of the philosophy of science and the metaphysics of time, rather than epistemology itself. Perhaps connected with this, existing discussions have also not primarily been concerned with the way in which knowledge or memory themselves may exhibit a temporal asymmetry. Rather, as indicated in the quote from Albert, the main focus has ultimately been on the general idea that we can have *records* of the past but not of the future, where such records have typically been conceived of as things that we can *acquire* knowledge from.

Within the context of the present paper, there is only space for a very brief and crude sketch of some of the work that has been going on in this area. One useful starting point is the observation that there are ways we have of finding out about things in the world that do *not* display a past/future asymmetry. Laplace's demon provides a vivid demonstration of how, under the assumption of determinism, both

past and future states of the world could, in principle, be inferred from the present state of the world using dynamical laws. We may not have the demon's comprehensive knowledge of the present state of the world or his powers of deduction, and our world may also not be governed by strict determinism; yet, as long as we stick to the method of making inferences across time using dynamical laws, it is not obvious why these factors should differentially affect our ability to do so in the future and the past direction, respectively.

The only thing that really breaks the parity between the past and the future and introduces the epistemic asymmetry, then, is that there is also a *separate* way in which we can have or obtain knowledge of non-present events or states of affairs, other than by applying dynamical laws, but it is only past events and states of affairs that this separate way can give us epistemic access to. This is what the idea that there can be records of the past, but not of the future, is trying to capture. To use a paradigmatic example discussed by Reichenbach (1956), a footprint on a beach can tell us of a person walking there in the past, but there is nothing that could tell us in an analogous way about future events.<sup>4</sup>

Attempts to explain the existence of the epistemic asymmetry, thus understood, typically link it to another asymmetry in time: the thermodynamic asymmetry. This consists in the fact that the world, as we experience it, is marked by an earlier/later entropy-gradient. As Jill North (2011, p. 313) explains:

Our everyday experience is largely of physical processes that occur in only one direction in time. A warm cup of coffee, left on its own in a cooler room, will cool down during the day, not grow gradually warmer. A box of gas,

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<sup>4</sup> The example is originally from Schlick (1925).

opened up in one corner of a room, will expand to the volume of the room; an initially spread-out gas won't contract to one tiny corner. A popsicle stick left out on the table melts into a hopeless mess; the hopeless mess sadly won't congeal back into the original popsicle.

Each of these processes is one of a transition from a lower-entropy state to a higher-entropy state, and we only find these transitions occurring in one direction in time, and never in the reverse direction.<sup>5</sup> Crudely, what is meant by an entropy-increase here is that, as it is sometimes put, a system in a state that exhibits a particular form of order (all the warmth concentrated in the coffee cup, all the gas condensed in the box in the corner, the popsicle occupying a small, well-defined place on the table) evolves into one that exhibits less order of this kind.

How might the thermodynamic asymmetry be connected to the epistemic asymmetry? Consider again the example of a footprint on a beach. The section of the beach containing the footprint is a physical system that, in virtue of containing the footprint, exhibits a (relatively) low state of entropy: the way the grains of sand are distributed involves a relatively sharp closed boundary between two regions: the region inside the footprint and the region outside it. Given what we have just said about the way such systems evolve over time, this is a type of state that we would not expect to arise spontaneously just from the movements of the grains of sand on the

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<sup>5</sup> What, in turn, explains this fact is still the subject of considerable debate. There is a fairly straightforward statistical story to be told about why we should expect entropy to increase over time, i.e., why we should expect low-entropy states to evolve into higher-entropy states. The problem is that the relevant statistics are temporally neutral: the same considerations should lead us to think that entropy increases in the past direction too. There is therefore a second explanation needed as to what introduces the past/future asymmetry. See, e.g., Callender (2016) for discussion.

beach. Left on its own, we would expect the footprint to disappear after a while, as the sand gets blown around in the wind; we would never expect to see the reverse of this process. This is what makes the footprint, considered as a particular kind of physical arrangement, capable of acting as a record.<sup>6</sup> What it records is an interaction between that section of the beach and some other physical system itself exhibiting a low state of entropy: a human walking along the beach. This is what the footprint is a record of, but, given the direction of the thermodynamic asymmetry, in so far as this is what is recorded by the footprint, it must be something that lies in the footprint's past, rather than in its future.

Something broadly like this story is accepted in much of the current literature, although there have also been a number of criticisms that suggest that, at the very least, it needs to be refined if it is supposed to provide an accurate account, e.g., of the level of detailed knowledge we take ourselves to have about the past, and of the variety of ways in which we can derive inferences about the past from present evidence.<sup>7</sup> I will not rehearse these existing debates in what follows. Rather, my focus will be on a different aspect in which this story, even if true, remains rather incomplete. As I want to argue, it gives us an account of only one type of

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<sup>6</sup> Throughout this paper, I will use phrases such as 'is a record of' and also 'remembers' as factive, i.e. as implying veridicality (see also the focus on *knowledge* in what follows). My question is: In so far as there are such states as being a (veridical) record of something, or (veridically) remembering something, what constitutes something's or someone's being in them? I will set aside the existence of other, non-veridical states that we might, on occasion, be unable to distinguish from those veridical states, and the separate set of philosophical issues they might raise.

<sup>7</sup> For some challenges to this story, see, e.g., Earman (1974) and Horwich (1987). For a revision, according to which there is a more fundamental asymmetry that grounds both the epistemic asymmetry and the thermodynamic arrow, see Albert (2000).



phenomenon connected with the epistemic asymmetry, not least leaving out the particular aspect of the epistemic asymmetry that we are arguably most intimately acquainted with.

## 2. The epistemic asymmetry and semantic memory

Part of my aim in relating the distinction between episodic memory and semantic memory to the general issue of the epistemic asymmetry of time is to provide a taxonomy of several different types of ‘records’, all of which exhibit a type of past/future asymmetry, but with each of them doing so in a somewhat different form.<sup>8</sup>

Or so I will argue.

A first question to consider in this context is in what respects memories, in general, differ from phenomena such as the footprint on the beach. I will assume that, at some level of abstraction, memories, too, may be described as records, and there may also ultimately be a common underlying explanation, perhaps of the kind sketched in the previous section, as to why both memories and other types of records exhibit a past/future asymmetry (where the nature of this asymmetry is to be spelled out further for the case of memories in what follows). Yet, there is clearly also a sense in which we are dealing with phenomena of two somewhat different kinds.

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<sup>8</sup> As indicated by the scare quotes, I am not entirely happy with this use of the word ‘record’. I need a word that generalizes over all the different particular phenomena that result in a past/future asymmetry in our epistemic standing, and I have chosen to go with the word ‘records’ as it is already being used in the existing literature on the epistemic asymmetry. Yet, it is also an important part of my argument that there are crucial differences between some of these phenomena, which I also take to be indicated by the fact that, e.g., a footprint on a beach is perhaps better described as a trace, and that memories, even if they can be described as records in some sense, are not necessarily memories of the thing they are a record of (as I will explain below).

One obvious way in which memories are different from phenomena such as the footprint on the beach is that the former are themselves epistemic states, they embody pieces of knowledge. The latter, by contrast are items from which pieces of knowledge about the past can be obtained, but doing so first requires the subject drawing an inference (e.g., from the existence of the footprint to the past presence of another person on the beach). One way of explaining this difference is in terms of the idea that memories, whilst falling under the general category of records, are records specifically of *epistemic activity*; even more specifically, they are records of the formation of the very epistemic state that the subject's subsequent remembering consists in, her memory consisting precisely in the fact that it has been preserved.<sup>9</sup> In so far as items such as the footprint on the beach also count as records, by contrast, they are typically records of non-epistemic activity. And even if some of them may, in some sense, also be described as records of epistemic activity – the knot I have put in my handkerchief to remind myself of something may perhaps qualify as some such – they are not themselves epistemic states formed by this activity.<sup>10</sup>

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<sup>9</sup> For this reason, speaking of memories as a type of record is compatible with Dummett's (1993) claim that that "[m]emory is not a *source*, still less a *ground* of knowledge: it is the maintenance of knowledge formerly acquired by whatever means." It is plausible to think that things that can be a record of something can also, at the same time, be a record of a number of other things. In the case of memory, though, its being a record of the relevant event of knowledge-acquisition is what makes a memory a memory.

<sup>10</sup> This is not to rule out that states of objects outside a person's body could, under suitable circumstances, form *part* of that person's epistemic state. I take it whether they can, and, if so, under what circumstances, is precisely one of the things under discussion in debates about the 'extended mind thesis' (Clark & Chalmers, 1998).

The fact that memories themselves embody knowledge, whereas phenomena such as footprints on the beach are merely items from which knowledge may be obtained by inference, constitutes an important difference between the two.<sup>11</sup> In the case of semantic memory, however, there is also a further important dimension of difference from the case of footprints. I have said that, like a footprint, semantic memories are records, though they differ from a footprint in being records specifically of epistemic activity. I have also said that semantic memories embody knowledge (rather than just serving as items from which knowledge can be derived). Yet, crucially, the knowledge that semantic memories embody is not knowledge of the epistemic activity they are records of. The knowledge they embody derives from that activity, but it is not knowledge about that activity.

This becomes particularly clear when we consider that there are no restrictions regarding the *tense* of beliefs that can be stored in semantic memory. The astronomer who has figured out that there will be a lunar eclipse next week can retain this knowledge in semantic memory, but her memory is clearly not a record of that lunar eclipse, which is still to occur in the future. Rather, it is a record of her activity of having calculated the date of the eclipse. Similarly for memories of tenseless facts: After years of study, the mathematician may remember the Cauchy-Peano theorem,

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<sup>11</sup> I have focused specifically on the contrast between these two categories of phenomena. A further category of records that I will leave to one side for present purposes are records involving representational media such as written words or images. Like the footprint, they are not by themselves epistemic states (though see the preceding footnote), but in other respects they might be thought to share more features with memories. For instance, it is not just knowledge about the past that we can obtain from written texts or images – a diary entry may inform me of an appointment next week, a map may show the course of next month's marathon. As I will go on to discuss, semantic memory is similarly not restricted to retaining knowledge just about the past.

but her memory is clearly not a record of the theorem in the sense of that term associated with the epistemic past/future asymmetry. This means that in the case of semantic memories with a past-tensed content, too, it is important to distinguish between the question as to what is being remembered, i.e. what the content of the memory is, and what the memory is a record of.

There is also an important consequence of this when it comes to specifying the precise sense in which semantic memory exhibits an epistemic asymmetry. Crucially, there is no built-in past/future asymmetry in the knowledge semantic memories can embody. Any such asymmetry is at best a quantitative one – i.e. one concerning the *amount* of knowledge retained that concerns the past and the future, respectively – and, where such a quantitative asymmetry exists, it is (with one exception that I will get to) inherited from an asymmetry connected to the particular epistemic activity the relevant semantic memories are records of, rather than being explained by the nature of semantic memory itself. Thus, it would come as no surprise, for instance, that an archaeologist's semantic memory contains a great deal of knowledge about the past, since the main method of inquiry they pursue in their professional life consists in interpreting archaeological records, which are evidence only of past, and not future, events. In an exactly analogous way, though, the semantic memory of a scientist programming the future flight path of an interplanetary space probe could be expected to contain a great deal of knowledge of the future, because of the many calculations she has carried out to determine the future orbits of the planets to be encountered by the probe on its mission.

The one exception that is probably worth mentioning separately here are semantic memories about events that are in fact based on our own past experiences of these events. Amnesic patients often retain knowledge about events that have

happened to them, even though they are unable to recollect them in episodic memory,<sup>12</sup> and whilst some of that knowledge may have been acquired, say, through later testimony, there is no reason to rule out that some of it might also trace back to their own experiences of the relevant events, even though the only form in which it is now still available is that of a semantic memory.

In this sort of case, the time of the event the memory is concerned with in fact coincides with that of the epistemic activity it is a record of – a feature which, as I will suggest, semantic memories with this specific sort of history share with episodic memories. And, of course, semantic memories with this specific sort of history are, in virtue of this and given the general temporal asymmetry of records, restricted to carrying information about past events. Yet, crucially, because the knowledge regarding the relevant events has only been retained in the form of semantic memories, there is an important sense in which the epistemic asymmetry is no more manifest in these memories than it is in other semantic memories concerning past events. Specifically, the fact that the time of the event the memory is concerned with coincides with that of the epistemic activity it is a record of is not itself manifest as part of the memory itself. It is in just this respect, I now want to argue, that there is a crucial difference between semantic and episodic memory.

### 3. Episodic memory and the epistemic asymmetry

Just as blanket statements to the effect that we know more about the past than we do about the future are of little help in trying to explicate the epistemic asymmetry (if not

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<sup>12</sup> Patient KC, for instance, whilst being described as having lost all capacity for episodic recollection, can describe a number of aspects of his life before the accident that brought about his amnesia. See Craver, Kwan, Steindam, and Rosenbaum (2014).

outright false), so it is with another sort of blanket statement sometimes made in this context, viz. that we can remember the past but not the future. As should be clear from what I said in the previous section, when it comes to semantic memories, their contents can as easily range over the future as over the past, or they can even comprise tenseless truths such as those of mathematics. Semantic memories do exhibit the epistemic asymmetry, in so far as they fall under the general category of being records, but their doing so does not show up in the knowledge they can embody; it is not manifest in the knowledge possession of which having the relevant memories consist in.

Yet there is arguably one specific form of memory to which the statement that we can remember the past but not the future does apply, and this is what is commonly referred to as episodic memory. To a first approximation, episodic memory is the type of memory that allows us to remember particular events themselves, as they happened, in a way that is different from simply retrieving information about them of the kind that can also be retained in semantic memory. And, in contrast to semantic memory, it seems to be the knowledge that is retained in epistemic memory itself that exhibits a temporal asymmetry. We can remember events in this specific way only if they have already happened. Moreover, it is not just *de facto* the case that we can have episodic memories only of past events, and not of future ones; this is also something that is obvious to the remembering subject. Episodic recollection itself seems to involve a distinctive awareness, on the part of the subject, of the remembered events *as* lying in the past, in virtue of the particular type of mental state it is.<sup>13</sup>

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<sup>13</sup> There are certain approaches to episodic memory that allow for the possibility of cases in which subjects are in fact recollecting a past event, even though it doesn't even seem to them that they are representing a past event – the *de facto* obtaining of a causal connection between the subject's present

As should be clear from what has been said so far, this specific way in which episodic memory exhibits a past/future asymmetry cannot simply follow from the type of epistemic asymmetry also exhibited by semantic memory. Neither, it seems, can it simply derive from the one at issue in our capacity to make inferences about past events based on phenomena such as footprints on a beach. So we need to ask what grounds this more specific type of asymmetry.

Above, I suggested a general characterization of the distinctive sense in which memories are records, according to which what is distinctive about memories is that they are records specifically of *epistemic activity*; and even more specifically, they are records of the formation of the very epistemic state that the subject's subsequent remembering consists in, her memory consisting precisely in the fact that it has been preserved. In the case of semantic memories, however, I also suggested that, whilst they are records of epistemic activity, the knowledge they embody is not knowledge of that epistemic activity; what is retained in memory is rather just the epistemic state

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mental state and a specific past experience of theirs being supposedly sufficient to make it a case of episodic recollection (see, e.g., C. B. Martin and Deutscher (1966)). I argue against this way of conceptualizing episodic memory elsewhere (see Hoerl, 2014a). Another hypothetical situation in which one might claim that somebody who recollects an event in episodic memory need not necessarily think of the event as lying in the past is that of a person travelling back into the past but remembering events from the period in the future before they stepped into the time machine. As David Lewis (1976) has shown, though, cases of time travel force us to make a distinction between what he calls 'personal time' and what he calls 'external time', and whilst it is true that the time traveller might think of some events she remembers as being located in the future with respect to external time, this is compatible with thinking that she will nevertheless also be aware of them lying in the past with respect to her personal time (i.e. they belong to a period of her life when she was biologically younger). I am grateful to a referee for prompting me to clarify these points.

that was formed in this activity, which can have a variety of different contents, depending on what the relevant epistemic activity was.

What I now want to suggest is that, whilst what is retained in episodic memory, too, is an epistemic state that was formed through the epistemic activity the memory is a record of, in episodic memory that epistemic state, at the same time, constitutes knowledge of that epistemic activity. Thus, having an episodic memory is both a matter of having a record of past epistemic activity and having knowledge concerning that past epistemic activity; these two things coincide in episodic memory in a way in which this is not the case, I have suggested, for semantic memory. Moreover, this means that, in episodic memory, the epistemic asymmetry is manifest to the remembering subject in a way in which this is not the case for semantic memory.

At first, this characterization of episodic memory might appear in tension with the initial one that I gave at the beginning of this section, where I described it as the capacity to remember particular past events themselves, as they happened. But I think the two characterizations can be made compatible with each other, and indeed we can draw an explanatory link between them, if we think of episodic memory as preserving knowledge of events by preserving knowledge of our *experiences* of those events. That is to say, episodic memories embody knowledge of the epistemic activity through which they themselves were formed in the more specific sense that what is remembered in episodic memory is one's experience of an event, and it is in virtue of remembering that experience that the subject also remembers the event itself in the distinctive way involved in episodic recollection.

Similar sorts of considerations are also sometimes framed in terms of the idea that episodic memories are subject to a 'previous awareness condition' – i.e. that we



can only recall events in episodic memory that we have experienced ourselves.<sup>14</sup> Yet it is not obvious that existing accounts of episodic memory can give a satisfactory explanation as to why this condition holds in the distinctive way in which it holds for episodic memory. For instance, an explanation in terms of the causal processes underlying episodic memory seems unable to do justice to the fact that it seems introspectively obvious to us that the condition holds. Similarly, simply writing such an introspective awareness into the definition of what episodic memory is (as, e.g., Owens (1996) suggests) seems *ad hoc*. What we need is an explanation of how the fact that episodic memory manifestly involves retaining knowledge about past experiences makes possible the distinctive awareness of events we can enjoy in episodic memory, rather than just being an add-on to it.

I think a more promising approach to this issue is to consider exactly what kind of knowledge about experience episodic memory, distinctively, might be said to preserve. In particular, I want to consider a suggestion made by Matthew Soteriou (2008), according to which episodic memory involves retention of knowledge of our own past experiences more specifically in the sense that what is preserved in episodic memory is knowledge of ‘what it was like’ to experience the remembered event. What is retained in episodic memory, in other words, is knowledge specifically of the conscious experiential character of the relevant past experience.<sup>15</sup>

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<sup>14</sup> The term ‘previous awareness condition’ was coined by Shoemaker (1970), though the idea goes back at least as far as Locke (1690) and Reid (1785). For discussion, see also M. G. F. Martin (2001).

<sup>15</sup> This claim should be distinguished from the claim that the remembering subject’s current mental state must faithfully resemble her past experience in all respects before she can be said to have such knowledge. For instance, it is at least not obvious that one cannot be said to remember what it was like to experience a certain event if one remembers it from an ‘observer’ rather than a ‘field’ perspective. See also McCarroll and Sutton (2017) on related issues.

How might thinking about episodic memory as preserving knowledge specifically about what it was like to experience certain past events help make intelligible also the idea that it involves a distinctive way of retaining knowledge of past events, as well as exhibiting the epistemic asymmetry in a distinctive way that is manifest to the remembering subject herself? Here I think it might help to draw on some ideas in the existing literature on consciousness on the special status of knowledge regarding the conscious experiential character of experience. One issue frequently noted in this literature is that there seems to be an essential connection between such knowledge and first-hand experience: The only epistemic means by which we can come by knowledge of the conscious experiential character of an experience is by having the experience ourselves.<sup>16</sup> The point here is also sometimes made by saying that there is a particular way in which experience is *epistemically transformative* (Paul, 2014): It furnishes us with knowledge of a kind that we have no other epistemic means of obtaining – knowledge which itself is sometimes described in the vocabulary of ‘experience’, as in the in the notion of experiences which it is possible to have and accumulate a stock of.

The existing literature in this area is mostly concerned with knowledge of the conscious experiential character of *types* of experience, and the role experience itself plays in such knowledge. But what I want to suggest is that the points made in that literature also have important implications for our knowledge of the conscious experiential character of token experiences, in a way that lets us understand the

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<sup>16</sup> Discussion of this point is particular prominent in the context of work on the so-called ‘ability hypothesis’, according to which phenomenal knowledge consists in a particular form of practical knowledge (Lewis, 1990; Nemirow, 1990). But I think the latter should be seen as a further claim, intended as an explanation of why the point holds.

special status of episodic memory, if it is construed as the retention specifically of such knowledge.<sup>17</sup> Consider a scenario of a type described by A. J. Ayer, in which someone describes an incident in your past of which they were a witness. In this sort of case, there is a possibility that you may believe the other person, and that you may even be able to visualize the event based on your general knowledge, but without remembering it. As Ayer points out, though, in this situation it can also happen that you suddenly start remembering again.

The transformation may be uncertain. One says ‘I do dimly recollect it’, being still not quite sure whether one does or not [...]. But it may also be that all of a sudden the event comes back to one quite clearly. One has no doubt that one remembers it. (Ayer (1956, p. 146) See also Evans (1982, p. 308), Campbell (2001, p. 173))

What I am suggesting is that we can understand this situation as one in which the subject recovers the retained knowledge of a particular experiential episode and its conscious experiential character as that episode.<sup>18</sup> Why think that the capacity to retain knowledge of this type constitutes a separate, distinctive category of memory? Note that, because of the indispensable role that experience itself plays in equipping us with that knowledge in the first place, in so far as the subject retrieves that knowledge, its source is, at same time, obvious to the subject herself – it is not knowledge which, like the knowledge retrieved from semantic memory, can leave its source open; it is knowledge that the subject could only obtain through going through

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<sup>17</sup> For further discussion of related ideas, see also Hoerl (forthcoming).

<sup>18</sup> Compare here also Martin & Deutscher’s (1966) discussion of the phenomenon of ‘prompting’.

the experience itself. And it is in virtue of this that the memory can be said to involve a distinctive form of knowledge of the subject's particular past experience itself, and by extension of the event it was an experience of, as it happened. As we might also put it, the knowledge about a past event that is retained in episodic memory is the knowledge of just how our encounter with that event has added to our stock of experiences, and it is in virtue of this that it constitutes knowledge of that particular event itself and manifestly locates it in our past.

Thus, there is a specific way in which episodic memory exhibits an epistemic asymmetry, which is grounded not just in the fact that episodic memories fall under the general characterization of a record, but in something specifically to do with the knowledge that is retained in episodic memory, i.e. the fact that episodic memory is the retention of knowledge of what it was like to experience the remembered event, the only epistemic means of acquiring which is through the experience itself.<sup>19</sup> As we might also put it, the distinctive way in which episodic memories put us in touch with particular events and locates them in the past is rooted in the fact that it is memory for the particular epistemic transformation we underwent when we experienced the event and learnt what it was like to experience it – a type of knowledge we could only obtain on that occasion. This is why, in episodic memory, the time of the event the memory embodies knowledge of and the time it is a record of coincide in a way that is transparent to the remembering subject herself.

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<sup>19</sup> Saying that this constitutes a distinct sense in which episodic memory exhibits an epistemic asymmetry is compatible with it too having a deeper grounding in whatever asymmetry grounds the general asymmetry of records, e.g., the thermodynamic asymmetry.

#### 4. Coda: Episodic memory and time

I have sketched a characterization of the difference between episodic and semantic memory based on the idea that, whilst they both exemplify the epistemic asymmetry of time, each of them does so in a somewhat different way. Furthermore, I have also suggested that both forms of memory, in turn, exemplify the epistemic asymmetry in a way that differs from the way in which this is the case for records such as a footprint on a beach.

As I already hinted at towards the beginning of this chapter, interest in the epistemic asymmetry in recent metaphysics and philosophy of science is mainly driven by the ambition to give an account of the origins of this asymmetry (along perhaps with further asymmetries in our thinking about time that may be grounded in it) that is compatible with the idea that the fundamental dynamical laws that govern our universe are time-symmetric, as current physics suggests.<sup>20</sup> More specifically, the core agenda in this context is typically that of unmasking a pervasive tendency we seem to have towards thinking of temporal asymmetries such as the epistemic arrow as being due to the metaphysical nature of time itself. If what I have said in this paper is along the right lines, might it also perhaps be able to contribute to this unmasking project in a new way? I will conclude with some brief remarks on this issue, which are admittedly even more speculative than what I have said so far.

Contrary to the four-dimensionalist view of the universe suggested by modern physics, our everyday understanding of time conceives of time as completely different

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<sup>20</sup> At least by and large. There seems to be a breakdown of complete time-reversal invariance in the interaction between certain sub-atomic particles. Even if this is so, however, it is far from clear how this might explain the existence of the relevant asymmetries on the level of our everyday experience. See also Wallace (2013).

from space. However, there are several, potentially separable, dimensions of this perceived difference, which is part of the reason why metaphysical accounts of time that diverge from the four-dimensionalist picture come in several different flavours, depending on which of those dimensions of difference they foreground, such as presentism, the ‘growing block’ view, or the ‘moving spotlight’ view.<sup>21</sup> Put briefly, we may identify three such dimensions of difference as follows: that the present moment in time is somehow special, that there is a fundamental difference between the past and future, and that there is an irreversible ‘passage’ or ‘flow’ of time. What I now wish to suggest, as against the background of the preceding discussion, is that the epistemic asymmetry might in fact contribute to our everyday picture of time in two somewhat different ways, connected to two different such ingredients.

The epistemic asymmetry exhibited by records generally, i.e. the fact that we can have records only of the past and not of the future, is arguably one source of the idea that the past is fundamentally different from the future. Some work may be required to spell out in detail how exactly it gives rise to this idea, but there seems to be some intuitive sense in which we tend to think of the reason why we have records of the past but not of the future in terms of ideas such as the past is ‘fixed’ whereas the future is ‘open’, or that the past is real but the future isn’t.

To get right the particular way in which we tend to think of the future as ‘open’ and the past as ‘fixed’, however, it seems we also need to appeal to the somewhat separate, if connected, idea of an irreversible ‘passage’ or ‘flow’ of time that turns what first belongs to the open future into something that then belongs to the fixed past. And here we can perhaps see a separate role specifically for episodic memory to play

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<sup>21</sup> For an overview and discussion of these accounts see, e.g., Miller (2013).

in our everyday understanding of time.<sup>22</sup> In this paper, I sought to identify a distinctive way in which episodic memory exhibits an epistemic asymmetry, in addition to the asymmetry that comes with memories belonging to the general category of a record. I traced this distinctive way in which episodic memory exhibits an epistemic asymmetry back to the particular kind of knowledge that is retained in episodic memory, namely knowledge of what it was like to experience the remembered event – or, as I have also put it, knowledge of the particular epistemic transformation that experiencing the event consisted in. What is special about this kind of knowledge, I argued, is that it is only the experience itself that can equip me with it, which can explain why, in episodic memory, it is transparent to the remembering subject that the time of the event the memory embodies knowledge of and the time it is a record of coincide.

Implicit in these considerations, I believe, is the thought of form of irreversibility time has for us, from our epistemic point of view, that is specifically associated with the fact that we can engage in episodic recollection. To have the knowledge of what a particular experience is like, we must first wait until we undergo that experience, after which the knowledge is retained in episodic memory. That time is, in this sense, irreversible from our epistemic point of view is not just a thought that we apply in our thinking about the past. It can also play a crucial role in our thinking about the future. Experiences stay with us, and deciding about the future is in part a matter of deciding on what experiences we want to look back on.<sup>23 24</sup>

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<sup>22</sup> For a related argument, see also Hoerl (2014b).

<sup>23</sup> This is an important theme in Paul (2014, 2015). See also Hoerl and McCormack (2016).

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