

The Episodicity of Memory

Current Trends and Issues in Philosophy and Psychology

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Abstract Although episodic memory is a widely studied form of memory both in philosophy and psychology, it still raises many burning questions regarding its definition and even its acceptance. Over the last two decades, cross-disciplinary discussions between these two fields have increased as they tackle shared concerns, such as the phenomenology of recollection, and therefore allow for fruitful interaction. This editorial introduction aims to provide a comprehensive and up-to-date presentation of the main existing conceptions and issues on the topic. After delineating Tulving’s chief theoretical import and multifaceted legacy, it goes on to chart the different attempts to capture the episodicity feature of memory according to three categories: a first approach aims to show the cognitive abilities required for a subject to episodically remember; the second defines episodicity as a stage-specific feature; the last explains episodicity in terms of the epistemological properties of episodic memory. This state of the art thereby sets the stage for the contributions of the present volume, which will be introduced in conclusion.

1 Introduction

Episodic memory refers both to a long-standing intuitive notion and a recent, still controversial, theoretical concept. Of the various memorial capabilities with which human beings are equipped to retain information about their past, one – variously named “remembering”, “recollection”, “reminiscence” or “remembrance” – intuitively sets itself apart. It consists (in pre-theoretical terms) in reliving past autobiographical episodes as if one travelled back to them mentally and went through them anew in the

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form of phenomenally rich mental images. Thanks to its special feature of being oriented towards the past, this capability thus makes it possible to bear a direct relation to one's own past despite the passage of time (Tulving and Markowitsch 1998; Tulving, 2002b; Klein 2013). For centuries, philosophers have endeavoured to delineate and explain this mental phenomenon, pointing out its role within an individual's sense of self and personal identity, the special relation to time for which it allows, and the source of knowledge it provides.¹ The well-identified phenomenology and epistemic role of episodic memory therefore secure the relevance and content of its theoretical existence.

Yet as a theoretical concept, episodic memory remains problematic, whether one is concerned with its definition or with the very relevance of its existence. Indeed, since it was introduced by Tulving (1972, 1983) as a distinct cognitive memory system and subsequently restated by the author, a number of varying criticisms have been levied in psychology against its initial structuralist formulation and even against the very notion of episodic memory (Roediger and Kolars 1984; Roediger et al. 1989, 1999; Blaxton 1989, 1995; Toth and Hunt 1999; Dalla Barba 2002). In philosophy too, some set aside the idea of a distinct episodic form of memory (Bernecker 2010) and even authors who accept it are far from reaching any agreement about its definition. However, despite these attacks, the concept of episodic memory still proves theoretically fruitful. In psychology, for instance, it has been strongly argued for more than a decade now that the notion of episodic memory should even be extended to designate a complete neurocognitive system that makes it possible to travel mentally through time both towards the future (episodic future thought) and back to the past (episodic memory) (Schacter and Addis 2007). Others have suggested refining the notion so that, in addition to the fully-fledged form of episodic memory, room can also be made for the notion of a primitive non-conceptual form of this memory to be found in children and animals in particular (Russell and Hanna 2012). Furthermore, numerous recent philosophical works, often drawing on lessons from psychology, have taken the analysis of episodic memory further still (Dokic 2001; Hoerl & McCormack, 2001; Fernandez 2006; Soteriou 2008; Sutton 2010; Michaelian 2011b; Genone 2006; Debus 2013; Teroni 2015).

In our view, the contrasting theoretical positions currently held by the notion of episodic memory make it opportune to now take stock and question its definition. This is the common theme running through this special issue. However, we also believe that this task has to be undertaken by adopting a cross-disciplinary approach calling on both philosophy and psychology. As suggested above, the psychological elaboration of the concept of episodic memory intersects with a century of philosophical questioning, particularly because one of the essential features of this concept is the phenomenology of the recollective experience.² It is therefore no surprise that philosophers of mind have increasingly resorted to analyses derived from cognitive psychology, producing highly effective works (for instance Sutton 2010; Michaelian 2011b; De Brigard 2013). Conversely, an increasing number of psychologists feel the need to frame their analysis in philosophical terms, sometimes in collaboration with philosophers (McCormack 2001; Hoerl and

¹ Philosophical classics about a notion of remembering that is similar to episodic memory are: Locke, J., *An Essay Concerning Human Understanding*, II, 10 (1690); Hume, D., *A Treatise of Human Nature*, I, 1, 3 & I, 3, 5 (1739); Reid (1785); Bergson H., *Matière et mémoire*, II (1896); Russell (1921); Malcolm 1963.

² Tulving pinpointed this philosophical origin (1983; 1984).

McCormack 1999, 2001, 2008; Russell and Hanna 2012). Though increasing in number and first-rate in quality, such interactions remain limited. One major aim of this special issue is to help them to develop on recently emerged topics. In order to set the historical and theoretical background of the contributions to the volume, we shall first provide an overview of the chief existing issues raised by psychologists and philosophers and the conceptions of the episodicity of memory that they have elaborated throughout the short and dense history of this concept. We will then briefly present the respective main proposals of the papers.

2 Historical and Theoretical Background

What is the episodicity of so-called *episodic memory*? Does it characterize a special kind of memorial trace or engram? Is it a particular mode of information processing? Does it reside in a specific stage of the temporally extended process of remembering? Of what does its phenomenology consist and is it essential to episodic memory? These are some of the questions to which we shall present answers in what follows. We will first lay down the basic claims Tulving made along his research trajectory, with a view towards pinpointing both the theoretical specificity they have given to this notion and the contrasting legacy they have left behind. We will then distinguish three different ways in which researchers have defined the episodicity of memory and the chief conceptions to which each has given rise.

- A first set of conceptions accounts for episodicity in terms of cognitive capacities regarding the understanding of time and the notion of self required for an episodic recollection to occur.
- A second set gathers works considering that episodicity consists in a stage-specific feature namely:

either in an information *encoding* feature, with the phenomenology of episodic recollection deriving from this feature,
or in a *retrieval* feature that does not necessarily depend on specific encoding.

- A third set of approaches characterizes episodicity in epistemological and functional terms. Episodicity then consists in a certain type of knowledge and the role it plays in our overall epistemic lives.

Of course, some of these approaches overlap. For instance, the mental time-travel paradigm is prone to endorsing a constructivist stand on epistemological issues while also conceiving of episodicity as a retrieval-specific process. They nonetheless represent neatly distinct ways of looking at episodicity and, in a number of cases, have been elaborated as different alternatives to carry out this task.

2.1 Tulving's Legacy

1. Memory is not a unitary capacity. The many phenomena of memorial functional dissociations, studied from the 1960s on, led psychologists to wonder how to account

for this diversity. The question, echoed in philosophy, is according to which criteria one should accept to distinguish a specific form of memory and how one should conceive of the very idea of a form of memory. Tulving has his own answer. In addition to the long-term/short-term memory and explicit/implicit memory distinctions, one crucial stage in answering the question definitely consists in his distinction within long-term declarative memory between episodic and semantic memories.³ But what exactly is this distinction intended to separate, and according to which criteria? Tulving defines episodic memory as “an information processing system” (1972, 1983). This characterization is closely tied to the specific theoretical framework of so-called *structuralism* (or *multiple-system conception*), which proved constant throughout his trajectory from the 1980s on. Of course Tulving’s work does include sufficiently numerous and contrasting insights to have enabled very different, sometimes incompatible, developments that can all claim to be his legacy (see below). Yet it also has its own theoretical specificity that delineates the original concept of episodic memory.

In Tulving’s view, the episodicity of memory has to be grasped in terms of a system. In (1983; 1984: 224–9; 1985a: 386–7; 1985b; 1999; 2002b: 5–6) the notion of a memory system is elaborated as a structure formed of correlated operating components⁴ that possess both a neural and a cognitive distinct existence. These components are to be defined by what they do i.e. by the functions they fulfil – hence the label of a “functional system” and the idea of “functional incompatibility” that Tulving uses to distinguish between the three main systems of procedural, semantic, and episodic memories. For instance, the episodic memory system makes it possible to cast one’s mind back to one’s past experience, while the procedural memory system enables subjects to acquire motor and cognitive skills but not to represent the past circumstances of their learning. In turn, the specificity of these functional performances has to be accounted for in terms of the specific processes carried out by the operating components of the system. For instance, the retrieval component of episodic memory distinguishes itself by the mental experience of re-experiencing that accompanies the products of the constructive synergy of memorial engrams and retrieval situations (ecphory). Semantic recollective experience, on the other hand, though also representational, takes the form of actualized knowledge that does not require being oriented towards the past. In the General Abstract Processing System (1983, 1985b), an important correlate of this functional and processing specificity is that the information or knowledge encoded, stored, and retrieved is specific to its system. For instance, the semantic information consists of representations of facts that are not necessarily about the past of the remembering subject and it has the conceptual format of representation, in contrast with episodic information that derives from sensory encoding and has particular events

³ Tulving mentions different ancestors of his notion of episodic memory: James, *The Principles of Psychology*, ch. 16, 1890; Bergson, 1896; Schachtel, “On memory and childhood amnesia”, *Psychiatry: Journal for the Study of Interpersonal Processes*, Vol. 10, 1947, 1–26; Nielsen, *Memory and Amnesia*, 1958, p. 25; Reiff & Scheerer, *Memory and Hypnotic Age Regression: Developmental Aspects of Cognitive Function Explored through Hypnosis*, 1959; Munsat, *The Concept of Memory*, 1966.

⁴ The phrase “elements of episodic memory” has to be taken in a wider sense that includes at once the operating components, the processes they perform, the states and behaviours they bring about, and the events that are perceived, encoded, and remembered (Tulving 1983, 1984).

as its specific objects.⁵ Last, these mnemonic structures are to be thought of as distinctively implemented in the brain. Tulving's structuralism is definitely a neurocognitive approach to memory that strives to bring out the biological correspondents of the memorial diversity that transpires at the cognitive level.

2. Two qualifying remarks are in order. First, important as it may be, Tulving's multiple-system stand remains one particular approach that can be, and has been, called into question. Indeed, important alternatives to structuralism have been put forward, of which the main one is the so-called *process-based approach* (for pioneering articles: Craik and Lockhart 1972; Jacoby et al. 1989). Of course as Tulving himself has repeatedly said, there is no opposition between the idea of different memory systems and the notion of memory processes, quite the contrary (see above). The demarcation line runs rather between, on the one hand, the view that these processes should be conceived of as underpinned by different systems and, on the other, the view that there is no need to posit such additional entities. For instance, Blaxton (1989, 1995) provides patterns of results that favour an alternative classification to the episodic/semantic memory distinction. She documents dissociations between tasks that Tulving (1983) considers to be episodic and similarities between results for tasks of which he considers some to be episodic and some to be semantic. She thus prefers to posit that there are different types of processes – namely conceptually driven processes and perceptually driven processes – rather than distinct memory systems. On a radical reading, the threat of such results is that the very notion of episodic memory could dissolve into different types of information processes. Along less radical (and more commonly followed) lines, a middle ground can be advocated that suggests transforming the definition of episodic memory. This is the move proposed, for instance, by the components-of-processing framework that considers the episodic engram as a trace distributed through different brain components rather than as being system specific (Moscovitch 1994; Cabeza and Moscovitch 2013). In this view, episodic recollection results from a distinctive combination of components that are also recruited by other cognitive tasks, though in a different way. While it still has a cognitive and neurological reality of its own, it is not a separate system.⁶ We do not claim that this is the end of the story, but rather that the very notion of episodic memory cannot simply be taken for granted.

Second, Tulving's conception should not be seen as fixed but rather as an evolving conception that was successively restated over time. He introduced the notion of an episodic memory system in (1972) not as a theoretical distinction but as a mere heuristic device intended to help the building of theories. The notion then designated a kind of memory specified by the type of information it processed, namely information concerning temporally dated episodes or events infused with autobiographical significance. This defining criterion progressively lost relevance over the following decades as the notion of a system became a stronger, experimentally grounded, theoretical concept (1983, 1985b). At the same time, Tulving endowed the criterion of recollective

⁵ See Tulving (1983: ch. 3; 1984: 224) and Wheeler et al. (1997): 333 sq.) for detailed lists of the respective features of episodic and semantic memories.

⁶ For other criticisms raised against the structuralist approach to episodic memory, see Tulving (2002b: 8 sq.).

experience with ever increasing importance. In (1997) he gave up the criterion of a distinct type of information, claiming: “Auto-noetic awareness (...) represents the major defining difference between episodic and semantic memory” (1997: 350). Indeed, he argued, tasks usually referred to as “episodic memory tasks”, namely tasks involving acquisition and recall of declarative information, could be performed without re-experiencing, for example the past episode during which certain items were learned (1997: 332; 2002b: 4, anticipated in 1983: 20). Semantic memory can handle when-, where- and self-referring information. What henceforth distinguishes episodic memory is the fact that it crucially and irreducibly involves a form of consciousness. Phenomenology becomes the defining criterion of the episodic memory system. It has to be spelled out in terms of so-called *autonoesis* – namely the type of consciousness that allows awareness of an event as a past lived episode of one’s subjective temporally-extended experience – to be distinguished from the *noetic* consciousness specific to semantic memory and the *anoetic* consciousness specific to procedural memory.

3. In conclusion to this section, we shall now identify some contrasting aspects to the legacy outlined above. It is possible for a variety of sometimes barely compatible conceptions to stem from Tulving’s work, rather than one single unified picture of the episodicity of memory. Here are some striking pieces of evidence in this regard.

The very notion of re-experience or replay (1983: 185–7, 1985b: 3–5) is introduced in order to grasp episodic memory’s distinctive feature of making it possible to cast one’s mind back to the past (2002b). This feature does more than merely suggest that episodic memory is the unique capacity to infringe the law of the unidirectionality of time in such a way that subjects can directly access their own past. But Tulving is also eager to emphasize the constructive nature of the content of episodic recollection by claiming the legacy of Bartlett and Neisser (1983: 180). The G. A. P. S. (1983) elaborates on this constructive trend in terms of the recoding process that alters the episodic engram and of the synergistic nature of ephory that makes the retrieval content relative to the retrieval cues.

Second, in Tulving’s structuralism, notions such as the content of the episodic engram and the specificity of the encoding context take centre stage. In this regard, recollecting an episode appears highly dependent on what precedes it. But Tulving also favours a conception of the episodic recollective experience that severs recollection from any possible previous event, up to the point of speculating, as early as 1983: “It may turn out that we should define episodic memory solely in terms of recollective experience” (185). He thus allows for theories that define episodicity in terms of certain properties of the retrieval experience as well as theories that conceive episodicity as an encoding feature from which episodic phenomenology merely derives.

Third, the very notion of autonoesis, so crucial to his conception of episodic phenomenology, is presented by Tulving in various ways. Auto-noetic consciousness is centrally characterized as the capacity to be aware of one’s past experiences, that is: as the capacity to mentally travel through time (1985b; 1997). But it is also presented as an epistemic feeling that informs us that we are remembering rather than perceiving or dreaming, for example. “Auto-noetic consciousness” then designates how episodic

memories feel (1997: 333; 2002b: 2 – see also 1983: 48). This is not the end of the story, though. At a certain stage in his thinking, Tulving (1997: 346) endorses Perner's reflexivist view (Perner and Ruffman 1995: 517, 543). Were this to be taken seriously, auto-noetic consciousness could then not be conceived of as an epistemic feeling produced by, and distinct from, memory content, but would need to be defined as a reflexive component of the content.⁷

These remarks are not intended to bring out inconsistencies in Tulving's work, quite the contrary. The aim is rather to pinpoint the seeds contained in this work for different subsequent approaches, and also to underline its merit in having sketched out in advance many of the lines followed by the conceptions that we shall now go on to introduce.

2.2 Episodicity-Grounding Cognitive Abilities

The episodic form of memory is central to understanding how psychological and philosophical analyses of memory have come to collaborate. In particular, by placing recollective experience on the agenda of psychological memory studies, Tulving (1983) did much to bridge the gap between this field and the philosophy of mind. Of course, important differences separate the philosophical and psychological approaches. The latter draws on experimental studies of behavioural and neural dissociations by means – to cite just one chief procedure – of the Remember/Know test (Tulving 1985b; Gardiner 2001), and has its own concepts and theories. While philosophers increasingly resort to experimental data, they tackle episodic memory with their own leading issues and methods, particularly sensitive to conceptual and grammatical distinctions (Malcolm, 1963; Bernecker 2010). Nevertheless, these differences have increasingly proved to be mere differences of emphasis rather than symptoms of incommensurability, and this will be clear as we examine these conceptions in greater detail.

Some researchers have attempted to elucidate the episodicity feature through the cognitive abilities required for one to episodically remember. Representations of time and notions of self have come to the fore as possible necessary conditions.

1. Time is a key notion in episodic memory provided the latter is the sole mnemonic form that requires being oriented towards the past. Echoing psychological (James, 1890: ch. 16) and philosophical concerns (Russell, 1921, IX) for Tulving (1983: 187–8) recollective experience includes, as one of its essential parts, the feeling of pastness that endows the memorial image with the significance of a mental replay of a past experiential episode. Having defined auto-noetic consciousness as the capacity to be aware of such an episode as located in one's subjective time (1985b; 1997), he refines his analysis and makes room for a specific capacity of being aware of one's subjective time, distinct from auto-noesis, under the label of "chronesthesia" (2002a; Nyberg et al. 2010). This "sense of subjective time" raises a series of concerns both in philosophy and psychology. A first basic question is why the episodically remembered event is conscious *as re-experienced*. Should one conceive of the feeling of pastness as resulting from a component of the memory content relating, for instance, to the causal role played by the perception of the past remembered event with respect to the memory (Perner 2000; Fernandez 2008)? Or ought one to contend that the feeling stems from a procedural

⁷ See below.

feature of the retrieval process of the stored information (Jacoby et al. 1989; Matthen 2010)?⁸

A second issue concerns the representation of subjective time. Which representation of time has to be acquired to allow episodic remembering? Hoerl and McCormack (1999, 2001, 2008, 2011) have provided an important body of work on the temporal cognition required by episodic memory. Drawing on Nelson (1986) and Campbell (1994, 1997), they first distinguish script-like temporal frameworks formed from possibly recurrent sequences of events. The latter are not gathered in one single unified time series and do not allow the difference between two singular occurrences of the same script-type to be grasped. The temporal understanding upon which episodic memory is grounded is markedly distinct. It involves the notion of singular times that uniquely occur within a unilinear irreversible temporal series and form distinct possible temporal perspectives on the series of autobiographical events. These times are conceived as causally related so that the subject can think of the state of the present time as resulting from the past ones. According to Hoerl & McCormack, this second concept of the past characterizes the information that defines episodic memory. Indeed, while a past occurrence of a sequence-type of events can possibly recur as a type, it cannot do so as an occurrence singularized by its unique temporal location. On the subject of reoccupying such temporal perspectives, Hoerl & McCormack speak of a temporal decentring from the present towards the past, and a prominent metaphor in the literature has it that we mentally travel back in time. But which cognitive abilities are at play for subjects to navigate within the relevant temporal frameworks as they episodically remember? This is a third important, though less tackled issue. Upon further reflection, the mental time-travel metaphor proves to be dubious, as shown by Byrne (2010) and Matthen (2010).⁹ Time travellers experience the temporal locations to which they have shifted as present, not as past. Alternative answers have often been framed within the wider theory-of-mind vs. simulationism debate. Some argue that episodic temporal navigation is theory-driven to the effect that the location of what is remembered in the past draws on the conceptual information that this event took place at this point in time (Perner 2001, 2007). Against this, other researchers insist that it also includes the imaginative performance of simulating the past temporal perspective (Campbell 2002; Hoerl & McCormack, 2001; Shanton and Goldman 2010).¹⁰

2. As outlined above, Tulving (2002b) refines the notion of auto-noetic consciousness as the specific capacity to be aware of one's self in subjective time. According to him, episodic memory is conditional on this. If this is the case, a chief question is determining which notion of the self is at play here. Quite obviously a subject must have a representation of herself as temporally extended in order for her to be capable of episodic memories. To the experiencing "I" must be added the objective conceived-as-continuing "me" (James, 1890; Neisser, 1988). But if semantic autobiographical memories also require such a representation, then the condition in question certainly must be refined. Arguably, for a subject to episodically remember she must be equipped

⁸ See "Friedman (1990, 1991, 1993) for reviews of works on the temporal location processes at play in memory.

⁹ See also Owens (1996) and Martin (2001) for a similar idea.

¹⁰ Debates – to be introduced below – around the capacity at work in both episodic remembering and anticipation (Buckner and Carroll 2007; Hassabis and Maguire 2007, 2009; Nyberg et al. 2010) also foster this temporal navigation issue.

with a notion of herself as occupying, and able to re-occupy, different temporal perspectives. Two debates at least have arisen on this topic over recent decades.

First, there has been discussion regarding whether episodic memory must necessarily involve a reference to the self. The contents of episodic memories, some argue, relate primarily to events experienced in the past and these events do not necessarily possess autobiographical significance (Conway 2001a; Fivush 2001; Martin 2001; Perner 2001). They are directed outward, upon the world, as it were. Conversely, a great deal of autobiographical memories are clearly not episodic but rather semantic (Conway 2001b). For example, it is possible to remember that one broke one's leg as a child while having no episodic image of the event. What relation do episodicity and notions of self therefore bear to one another? For Tulving (1985b; 1997) and Perner (2000) the rememberer's self is represented in the content of any episodic memory, therefore the phenomenology of episodic recollection is self-related, that is "autonoetic". But the inherence of the self to the content of episodic memory can be approached in different ways. Rejecting the representational inherence of the self does not necessarily imply espousing the idea that self-consciousness cannot be among the grounding cognitive conditions for episodic memories. Linking the topics of the concept of time and the notion of self required for one to episodically remember, Hoerl and McCormack (2001) sustain that being aware that one is an entity occupying successive temporal perspectives over time enables the proper understanding of the past necessary for episodically remembering. However, they crucially argue, the fact that a form of self-consciousness shapes the proper concept of time by no means implies that the self must be systematically represented in episodic memories. In other words, the causal dependence of episodic memory on a representation of the self as perspective taking and temporally extended does not imply that the self is representationally inherent in the memory content. If this is right, the perspectival feature of episodic memory – which is a topic in its own right (Nigro and Neisser 1983; Crawley & French, 2005; Sutin & Robins, 2008; Sutton 2010) – is not equivalent to a representation of the self. In this perspective, episodic phenomenology would thus not be provided by autonoetic consciousness, but rather by a certain type of information that is causally dependent on a special notion of self and triggers autonoetic consciousness.

The issue of how to conceive of the way a subject owns her own memories has also been addressed through various questions. For instance, one can ask whether one could not be mistaken regarding the identity of the subject of the remembered experience. Is error through misidentification possible here (Evans 1982; Hamilton 2007)? Moreover, from a developmental standpoint, how and when do we come, to assign our memories to ourselves? The role played by the joint reminiscing carried out through interactions between parents and children has been shown to be a social condition for prompting one to think of one's memories as personal past perspectives (Fivush 2001; Nelson 2001).

2.3 Episodicity as a Stage-Specific Feature

1. A plausible intrinsic feature of episodic memories is that while remembering, one does not merely retrieve a past episode, but also the experience through which one

acquired knowledge of this episode. For many researchers, subjects must possess a piece of information about the past experiential source of their present mnemonic knowledge. Of course, a semantic memory of a fact of experiential epistemic origin can convey this type of information as well. For instance, friends of mine could convince me that an image I have can only come from one of my past experiences. But episodic memory seems to do this in its own specific way. Indeed, episodic recollection preserves and presents both information about a past episode and the experiential source of the knowledge of this episode, which can explain the phenomenological feature of being aware of a re-experienced event.

An important trend in episodic memory studies has it that this distinctive knowledge of the source is secured by the encoding of a certain type of information. Originating in Tulving (1972)'s initial content-based characterization of episodic memory, this idea can be elaborated along two main lines. The first conceives of this knowledge as intrinsic to the encoded information about a past scene. For instance, against the definition of episodic memory as defined by a special state of consciousness Conway (2001a, 2009) argues that the type of information encoded consists of "phenomenological records" that summarize some past periods of the conscious life of subjects, in the form of sensory-perceptual snapshots. Delineated by the active goals of the self at the moment they are registered, these snapshots are taken to be one of the components of a more general structure of autobiographical memory that includes semantic memories (Conway 2005). They define episodic autobiographical memory and trigger the recollective experience specific to the latter. Fostered by investigations into how perceptual conscious life is sequenced (Kurby and Zacks 2007), Conway's line of research opens an interesting questioning of the very notion of an episode. Indeed, if episodic memory is distinctively about episodes, then what are these episodes? In particular, what is the binding process that secures their unity (Craik 1989; Nadel and Moscovitch 1998; Williams et al. 2008; Ezzyat and Davachi 2011)? Another, more classical but still vibrant research trend – so-called "contextualism" – conceives of the encoded information as highly contextual (Russell 1921; Polyn and Kahana 2007; Easton and Eacott 2008; see McCormack 2001 for criticisms). In this view, episodic information provides knowledge not only about the focal object of the memory, but also about the setting in which it was experienced. Here, the content of episodic memory would be about the *what*, the *where*, and the *when* of a past experience. This definition has experimentally operationalized the issue of episodic memory in non-human animals, as famously illustrated by the case of scrub jays (Clayton and Dickinson 1998; Roberts and Feeney 2009). A pressing question is whether one can take this further and account for the distinctive recollective experience along these lines. Clayton & Dickinson prefer to restrict themselves to the claim of "episodic-like" memories in animals. But others have recently argued that the binding of the what-where-when features in one single scene offers the possibility of explaining episodic phenomenology (Dere et al. 2008; Russell and Hanna 2012).

Other researchers have done it the other way around. On meta-representationalism (Perner and Ruffman 1995; Perner 2000, 2001; Perner et al. 2007, 2010), for a remembered event to be conscious *as* previously experienced, the subject must possess a theory of mind, namely: a set of concepts representing the mnemonic and perceptual mental states and their causal relations. The absence of these mentalizing abilities leads

to the inability to perform episodic encoding and explains, in particular, the phenomenon of childhood amnesia, namely adults' inability to have episodic memories about their early childhood (Perner and Ruffman 1995: 542). More specifically, these abilities work at the reflexive level of a "meta-representational" comment on the epistemic source of the memory – rather than at the first level of content, as in contextualism – and this comment is encoded simultaneously with the focal event of the memory. For instance, if during a test phase one episodically remembers that the word "pear" was on the study list, the content of one's memory has the following two-layered reflective structure: "I have information [(i) that the word 'pear' was on the list and (ii) that I have *this information* because I saw 'pear' on the list]". Note that this formulation secures the fact that the meta-representational comment must be caused by the past encountering of the event and is known as such. Suppose a subject is unsure whether a certain image she has is an episodic memory or not, and she learns from others that the causal source of her image is one of her past experiences. In this case, the crucial episodic feature of re-experiencing would be lacking because the source of the mnemonic knowledge would not be identified by the memory itself. Episodicity thus implies causal self-referentiality; the meta-representational comment, just like the first-level content, must come directly from the past (with no testimony, inference, or intermediary whatsoever) and represent itself as such. This is what the "this information" phrase, referring to the two levels of content, is intended to reflect.

Though meta-representationalism definitely offers one important account of the episodicity of memory, it raises difficulties. One of these is the place it gives to semantic memory. Determining the exact relations between these different types of memory is still an open question. Meta-representationalism adopts a specific stand on this topic. It promotes a reductionist approach by supposing that episodicity stems from the combination of two semantic levels of content. However, in opposition to this stance, many researchers have sought to preserve the specificity of information arguing, for instance, that episodic memory information does not involve conceptual content (this idea has been differently framed by: Evans 1982; Conway 2001a; Russell and Hanna 2012 – for a critical discussion, see Dokic 2001).

Let us consider a final information-encoding based view that is important in current research. Tulving contends, we said, that unconscious episodic memory is not episodic memory at all (1985b: 5; 1999: 20). But one key question is to determine whether episodic recollective experience is a necessary component of episodic memory. Can one remember without being aware of doing so (Jacoby et al. 1982)? If what matters to episodically remembering is the information encoded, why not dismiss the very phenomenological feature put forward by Tulving after all? Provided the information actually relates to a specific past event and is accessed, the consciousness component of retrieval could in fact prove to be of secondary importance. This idea has been elaborated by drawing on the notion of causality. Numerous researchers have argued that causality is a key concept for understanding episodic memory. For instance, Campbell (1997), Hoerl and McCormack (1999) as well as Perner (2000), are all eager to emphasize that for remembering one must be equipped with the concept of a causal relation between one's present mental state and a past one. But the role of causality in episodic memory can be assessed in a variety of ways. In a famous example, Martin and Deutscher (1966: 167) imagine the case of a painter asked to paint a farmyard. As he does so, believing he is drawing an image he has in mind

from his imagination, his parents realize that he is in fact painting a farmyard he visited once in his childhood. On the core idea of the causal theory (Bernecker 2008 for a recent vindication), provided the painter entertains a relatively accurate image of a particular scene he perceptually encountered in the past and this image causally derives in the proper way from this encounter, one could say that the painter is (episodically) remembering the scene.¹¹ The causal relation is a necessary condition of remembering and Tulving's idea of being conscious of this relation proves not to be necessary. The causalist dismissal of the consciousness condition raises problems, however. For instance, how could episodic memory carry out the task of casting the mind back into the past and fill the roles that depend on such a capacity? The debate therefore remains ongoing: must episodic memory necessarily take the form of an internal recollective experience?

2. An alternative kind of conception contends that the appropriate way of capturing the episodicity of memory mainly requires exploring the retrieval process. Its source lies in Tulving's idea (1997, anticipated in 1983) that ultimately it is the form of retrieval consciousness, rather than the encoding stage, that is of primary importance to the phenomenology of episodic recollection. Here again, several different conceptions have been promoted.

Meta-representationalism has it that source knowledge in episodic memory is a reflective component of the memory content. But against such a view, proponents of so-called attributionalism sustain: "(...) the subjective experience of remembering is not a direct manifestation of a particular kind of representation. (...) *pastness* cannot be found in a memory trace but, rather, reflects an attribution of transfer in performance" (Jacoby et al. 1989: 392–3, 400). On these lines, knowledge of the source is not included in content stored in memory. Instead, it is inferred from detecting certain procedural properties of the processing of an event, such as fluency, efficiency, fastness, or accuracy (on the same lines, see also the source monitoring approach, Johnson et al. 1993; Mitchell and Johnson, 2000). In brief, when such detection occurs, these properties are interpreted by the cognitive system as a transfer effect, and thus as symptomatic of the fact that what is represented is the subject of one or several past experiential encounters. The system having learned to interpret the significance of these properties, the source of the mental image is automatically attributed to the past and it makes the represented scene feel familiar. The alleged result of this attribution process is nothing but the phenomenology of the recollective experience. The latter thus derives from the subject attributing her present mental state at retrieval to her past experience. One important aspect of this conception is that it is well equipped to account for cases of false memories. The many cases of illusory impressions of remembering can be explained in terms of interpretation mistakes, as confirmed by numerous experiments bringing out cases of misattribution. For instance, if during the test phase of a recognition task some words are relatively less covered by the noise of their visual context, the fluency with which they are perceived leads many subjects to declare them "old" – that is: they are felt to be familiar – as if they had been present in the study list though they were not (Whittlesea, Jacoby and Girard, 1990; Whittlesea and Williams,

¹¹ This status as necessary condition is intended to oppose empiricist views of remembering that claim to dispense with any causal relation (for a similar criticism, see Anscombe, 1974).

2001). Encoding can undoubtedly play an important role here since it can bring about priming effects that will trigger attribution to the past. The point to emphasize is rather that in attributionalism, episodic memory considered as defined by the phenomenology of re-experiencing consists essentially in a retrieval process which – as illustrated by the misattribution phenomenon – does not necessarily depend on any specific encoding: “the subjective experience of remembering, like sadness or joy, is a feeling that can exist somewhat independently of the objective reality” (Jacoby et al. 1989: 416). Attributionalism faces important concerns, however, that mean it remains to be developed as a programme. In particular, how can the feeling of familiarity alone make episodic memory distinct since it seems much more appropriate to semantic memory and knowing-that (see Yonelinas 2002 for an extended review of works distinguishing recollection and familiarity)? As an alternative, some currently suggest that there is a specific episodic feeling of knowing (Dokic, this volume) and/or that episodic recollective experience is triggered by the monitoring of specific cues (for instance, spatial ones, Gomez et al. 2009).

Another important line of research in which episodicity is a retrieval feature tackles the topic of episodic future thought. Tulving (1985b) and Wheeler et al. (1997) emphasize that auto-noetic consciousness makes it possible to mentally travel both towards the past and the future. Symmetrically to the re-experience of past lived episodes, one can imagine and pre-experience specific personal episodes that may potentially occur in the future. Since the beginning of the 2000’s (Atance and O’Neill 2001), the question of how to account for this type of thought and, in particular, of how it relates to episodic remembering, has been intensively debated in psychology. This offers an opportunity to renew the study of episodicity. First, if one takes for granted that episodic future thought exists, then the latter likely involves a set of properties and processes that it shares with episodic memory. Delineating this set makes it possible to sharpen the definition of episodicity by differentiating the elements in remembering that belong to episodicity from those that do not. Different proposals have been put forward in this regard. They have been framed within the constructivist view (Bartlett 1932), widely accepted by most researchers. On this view, episodic memory is not the capacity to preserve literal records of the past through time, but the ability to construct episodes by piecing together pieces of information, both conceptual and perceptual, about past experiences (Schacter and Addis 2007). Once episodic memory is conceived as a construction capacity, episodic future thinking can be seen as an expression of the former, since the same construction processes are at work, this time combining pieces of episodic information to build up future scenarios. Arguably, thus, a neurocognitive constructive episodic memory system exists that is based on specific brain regions and includes specific processes resulting in mental time travel. Researchers characterize this system in various ways. According to one proposal, a set of processes forming the common cognitive and neural denominator to defining episodicity grounds the ability to project oneself into different temporal and spatial perspectives, which also occurs in other cognitive tasks such as navigation and theory of mind (Buckner and Carroll 2007). Another proposal is that all these tasks rely rather on the ability to construct scenes (Hassabis and Maguire 2007, 2009). Preferring a conciliatory stand, some argue that the core feature of the episodic thinking system is the capacity to simulate personal events (Schacter and Addis 2007; Perner et al. 2010; Shanton and Goldman 2010; De Brigard 2013). Second, the idea of a general episodic

thinking system has revived the question of the functional significance of episodic thought. What specifically is it supposed to perform? One type of answer is illustrated by the idea that it is dedicated to improving the efficiency of thought about the future (Szpunar 2010). Another concerns the phylogenetic adaptive significance of such a system (Suddendorf and Corballis 1997; 2007). However one elaborates on the notion of episodic future thought, the very idea that there can be thoughts bearing on the future that are fully-fledged episodic thoughts has strong implications that are worth noting. Indeed, this supports Tulving's idea (Wheeler et al. 1997) that episodicity – a feature that draws on chronesthesia and auto-noetic consciousness capacities and not to be confused with remembering (Tulving 2002a, b) – entertains no essential relation with encoding. This implication raises one key issue that has recently been tackled: can one sustain a strict symmetry thesis about the respective episodicity of remembering and anticipation? In brief, are memory and prospective imagination episodic in the same way?

2.4 Episodic Memory as Providing Specific Knowledge

A final set of conceptions approach the specificity of episodic memory through the kind of knowledge it provides. Intuitively, episodic memory conveys not only knowledge about the past – Tulving (1983) pinpoints its representational character and the feeling of veridicality intrinsic to episodic recollective experience – but also a distinctive epistemic access to the past (often referred to as “direct”) that is different to semantic memory knowledge in particular. This specificity has led philosophers as well as psychologists to propose epistemologically defining features of episodic memory. In philosophy, numerous recent works have striven to revive Russell's view, in which the “direct” term has to be taken seriously. According to this view, in some way, episodically reliving a past scene puts one in contact with this scene *itself* (Reid 1785; Martin 2001; Hoerl 2001; Campbell 2002; Debus 2008, 2013; Bernecker 2008; Byrne 2010). In psychology, the aspect explored is rather the discrepancy that possibly separates memory from past reality. The many cases of memory distortion or of confabulation, such as in false memories that sometimes present themselves endowed with episodic memory phenomenology, have afforded understanding of the constructive processes at work in memory in general (Koriat et al. 2000 for a review). However important they may be, these epistemological considerations have not yet given rise to a fully-fledged epistemological approach to episodic memory. Nevertheless, as promising works have recently shown (Soteriou 2008; Michaelian 2011a, b; Teroni 2015), this still nascent approach deserves a place within episodic memory studies in its own right. Three interrelated problems can be distinguished that helpfully chart the field of existing conceptions and pave the way for future analysis.

A first line of research tackles the accuracy issue. Should we say episodic memory is a fair representation of the past? The constructive feature of memory in general – widely accepted nowadays by psychologists (see above) but less so in philosophical accounts – could prompt a negative answer. But as Michaelian (2011b) points out, this multifaceted phenomenon that determines encoding as well as consolidation or retrieval stages calls for a more refined analysis. Indeed, while constructive processes sometimes bring about inaccuracies and distortions, they are

the very mechanisms that ensure that memory functions well most of the time (Schacter 1996; Whittlesea et al. 2001; Michaelian 2011b). For instance, the well-known process of gist memory – without which human memory could not stock as much information as it does – is the cause of memory distortions as well as a condition for efficient mnemonic storage. Therefore constructivism on episodic memory does not appear at all incompatible with reliabilism, according to which a memory belief is justified if it is produced by a reliable process. As suggested, according to many empirical studies the constructive processes at work in memory prove to be highly reliable. Rather than a sceptical way of elaborating on the constructive nature of memory (Shanton 2011), one could thus endorse a reliabilist option (Michaelian 2011b). This does not settle the issue, however. Let us simply note that one of the benefits of such an epistemological stand is that it allows the high reliability of episodic memory to be vindicated without adopting the increasingly less tenable view of memory according to which remembering consists in retrieving a representation that has supposedly been deposited in the brain.

A second, currently leading, epistemological topic is the very nature of the informational access to the past that is rendered possible by episodic memory. Does episodic memory offer a specific, and possibly privileged, epistemic access to the past? For instance, a proponent of reducing episodic memory to semantic memory could argue that the former is of a doxastic nature and constitutes a form of belief (Russell 1921, for a seminal formulation). In this view, by episodically remembering, one entertains a belief about one's own past rather than having a relation of direct acquaintance with it. However, as some researchers remark (Perner 2001: 184–5; Soteriou 2008: 476), episodic recollection shares important non-doxastic properties with experiential apprehension, such as being accessed without any initial truth-value assessment and manifesting cognitive impenetrability. Hence many philosophers have attempted to make the case for the idea that episodic memory puts the subject in direct relation with her past rather than merely representing it. Of course, as accepted by the vast majority, any episodic memory involves a representation of the past; it is no diachronic clairvoyance. The point is rather to argue that while a representation is required as a vehicle for the memory, the intentional object of the latter is the past itself (Bernecker 2008). The alleged directedness of episodic memory then means, on the one hand, that such memory is not inferred from the rememberer's internal images and/or beliefs, nor received from testimony and, on the other hand, that its phenomenology is such that it offers an epistemically privileged presentation of the past. That stand – often called *relationism* or *direct realism* and opposed to representationalism or indirect realism – is widely illustrated in the recent philosophical literature on episodic memory. It comes, though, in different guises and raises several debates. For one thing, what is directly accessed when episodically remembering? There are competing ideas regarding what the object of remembering is (Fernandez 2006). Some insist that the past apprehension of the remembered scene is preserved (Martin 2001; Byrne 2010) while others include the causal significance of the scene with respect to the remembering (Dokic 2001). Furthermore, how can one account positively for the idea of a *direct relation* specific to episodic memory? Here again, different options are currently available. Some account for this phrase in terms of the simulation of the scene remembered (Campbell 2002; Shanton and Goldman 2010). On an alternative goal-based approach, the directedness phenomenology of episodic memory cannot be severed from the project in which the

rememberer is engaged. Episodic memory images place a past event itself before the mind because they play the epistemic role of grounding beliefs about the past. This would be the case, for example, when one believes one turned off the gas in the morning and is able to confirm this belief by mentally seeing oneself doing it. Directness of episodic memory would thus stem from its comparatively more direct presentation of past events (Hoerl 2001).

A last set of questions revolves around the epistemic function that episodic memory fulfils within our overall epistemic lives. Naturally enough, this is discussed in close relation with the accuracy problem and the direct epistemic access of episodic memory representations. Two main questions currently discussed offer interesting research prospects. First, is there an epistemic hierarchical relation between episodic memories and other mental states? It is often claimed that these memories are essential sources of knowledge or epistemic starting points (Wiggins 1992; Hoerl 2001). But in what sense is this the case? For instance, is episodic memory independent from other sources such as perception or not? On a classical view (see Burge 1993), episodic memory preserves content provided by past perceptual encounters, just as semantic memory preserves factual knowledge. If so, while it is definitely an essential epistemic source, it cannot be a fundamental one. But some (Martin 2001; Dokic 2001; Lackey 2005; Matthen 2010; Michaelian 2011b) convincingly argue that episodic memory can be properly generative in different respects. A second question with which to conclude is how episodic memory plays its role of epistemic justification with respect to our beliefs and judgments. In particular, does it do so in the same way as semantic memory? Should one accept the classical unitary view of the epistemology of memory or not (Teroni 2015)?

3 Overview and Rationale of the Issue

The papers in the present volume can be sorted into two main groups, which address most of the topics discussed above. The idea that episodicity is a feature of a general system allowing for mental time travel runs the main risk of blurring the distinction between episodic memory and sensory imagination at work in episodic future thought. How should the relation between the two be considered? The first set of articles tackles this issue. R. Hopkins defends the view that episodic memory and sensory imagination are closely similar mental states. He promotes this perspective against the idea sustained by the mental time-travel paradigm according to which episodic remembering consists of a quasi-experiential and passive access to the past, and is thus a fundamental source of knowledge. Episodic remembering is an action, Hopkins first argues, since it allows for bare trying – i.e. trying to episodically remember does not involve success in any other action – which is one of the hallmarks of genuine action. Moreover, one's remembering is the actualization of a knowledge one already had in a dispositional form. Thus, contrary to a widely held position, Hopkins concludes, episodic memory is not a genuine source of knowledge as perception. What distinguishes remembering from imagining is merely its direct causal determination by the past.

D. Debus' and C. Hoerl's contributions emphasize, on the contrary, what distinguishes episodic memory from sensory imagination. Debus' paper is intended as a contribution to refining the recent paradigm of mental time-travel from a philosophical

perspective. In addition to the many similarities between episodic memory and sensory imaginings of future events identified by this paradigm, an important dissimilarity, she argues, must be emphasized. Her main claim is that while episodic memories are awareness of particular events, anticipating sensory imaginings can only be about general types of event. More specifically, remembering is the experiential consciousness of a particular past event, but as far as one anticipates an event, one cannot be *experientially* aware of such a particular event. Therefore, Debus contends that remembering and imagining must not be held as being of the same kind. Mental time travels towards the past and towards the future are markedly different. For his own part, **Hoerl** makes the case for the distinction of two close and often conflated types of remembering, namely what he labels “remembering seeing *x*” (i.e. episodic memory) and “remembering what *x* looks like”, which is the memory involved in sensory imagination. Hoerl explores what the right account of this distinction should be. Though concerned with this distinction, he claims, the criteria proposed by empiricist accounts in terms of “memory indicators” (including Clayton & Russell’s recent minimalist approach) fall short. According to his alternative, remembering is distinguished by the aspectual phenomenology of the remembered event that appears in recollection as completed.

As stated previously, the key topic of phenomenology has become increasingly important in studies on episodic memory over the last two decades. The second set of contributions revolves around this notion. They all propose to renew it in one way or another. One aspect of episodic phenomenology is its egocentricity. J. Fernandez’ and J. Russell’s papers are largely dedicated to this topic. **Fernandez** aims at determining whether episodic memory judgements are immune to error through misidentification (IEM), that is whether it is impossible, when I judge that “I did such and such” on the grounds of an episodic memory, for this memory to present someone as having done such and such, and for me to mistakenly identify myself as being this person. To carry this out, Fernandez investigates the content of episodic memories. Indeed, if episodic memory judgements are IEM – as Fernandez holds – then arguably this is due to a certain way in which the subject is aware of herself in her memories. Provided such memories inherit their content from past perceptual experiences, they inherit the perspectival aspect of perception; their content includes the relational properties of the subject to the perceived object that are part and parcel of the past perceptual contents. Now if I seemingly remember having a past perception, *I* thereby seem to have perceived the remembered event to the effect that my memory represents relational properties of *mine*. Therefore, Fernandez maintains, episodic memories and the corresponding judgments must be declared IEM. In his paper, **Russell** approaches the perspectival character of episodic memories with a view to arguing that it can also feature in a minimal form of episodic memory – so-called “proto-episodic memory” – as well as in the most studied full-blown episodic memory. The former refers to a pre-conceptual kind of memory that includes the phenomenology of re-experiencing but not the mastery of the concept of a unique episode. Drawing on experiments with 2-year-old and 3-year-old children, Russell argues for the existence of this type of episodic memory in terms of the classical what-where-when memory model. On his configural (*vs* elemental) model, the spatial, temporal, and semantic parameters of a past event are pieced together at encoding within a perspectival spatial framework that combines egocentric and allocentric codings, so that they can bring about the phenomenology specific to re-experiencing.

There has been a growing body of work dedicated to the feelings of knowing over the past decade. J. **Dokic**'s core proposal – labelled a “feeling-based account” – is to extend the cognitive role of episodic feelings of knowing, which are generally considered as grounding subjects' belief that they could episodically remember though they currently cannot, to the cases in which subjects are successfully doing so. According to this proposal, episodic memories are states that feel episodic because of implicit monitoring of specific properties of retrieval processes, namely cues such as the amount of details or spatio-temporal information, distinct from the cues that trigger semantic feelings of knowing. This suggests a new stand to take regarding in what episodic phenomenology consists. Indeed, the conception of such phenomenology as a feeling first rebuts one-state accounts such as meta-representationalism, which grounds episodocity on semantic content and thus falls short of the immediate quasi-affective phenomenology of episodic states. It also avoids the pitfall of classical two-state accounts that promote feelings unable to explain episodocity – e.g. the feeling of familiarity, which is insufficiently specific, but also the feeling of pastness that does not involve the metacognitive significance present in the episodic feeling of knowing.

A question related to the phenomenology of episodic memory is why it has been evolutionarily selected. This issue forms the central topic of S. **Klein**'s paper. *Contra* classical approaches in philosophy and psychology regarding the indices that enable subjects to distinguish between episodic remembering and imagining, it argues that an account cannot be satisfactory unless it aims to capture the functional significance with which natural selection has endowed episodic memory and its unique subjective temporal orientation towards the past, among the various kinds of memories that exist. More specifically, Klein recalls that episodic recollection is reconstructive and does not aim primarily at providing a fair reproduction of the past, but rather at offering efficient grounds for current and future action. While it relates to the past, episodic remembering is about the future. That said, on his view the functional significance of episodic memory lies in its specific phenomenology. Auto-noetic consciousness allows for deciding whether one is remembering and, if this is the case, it provides an index one can rely upon so as to use one's recollection as a trustworthy source of knowledge about the past.¹²

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