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The Complex Phenomenology of Episodic Memory

Felt Connections, Multimodal Perspectivity, and Multifaceted Selves

Abstract: *There is thought to be a rich connection between the self and the phenomenology of episodic memory. Despite the emphasis on this link, the precise relation between the two has been underexplored. In fact, even though it is increasingly acknowledged that there are various facets of the self, this notion of the multifaceted self has played very little role in theorizing about the phenomenology of episodic memory. Getting clear about the complex phenomenology of episodic memory involves getting clear about various components that contribute to the sense of self. Inspired by work on 4E cognition, and focusing on the phenomenological feature of felt connections, we show that the phenomenology of episodic memory can be modulated by focusing on different facets — embodied, extended, embedded, and ecological — of the self.*

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Journal of Consciousness Studies, **29**, No. 11–12, 2022, pp. 29–55
DOI: 10.53765/20512201.29.11.029

1. Introduction

Episodic memory is memory for events in the personal past (Sutton, 1998; Michaelian, 2016). When we episodically recall these past events, our memories tend to involve a rich phenomenology, replete with imagery in various sensory modalities, and perhaps emotional content (Trakas, 2021a). Indeed, because these remembered events are events that *we* previously experienced, there is thought to be a rich connection between the self and the phenomenology of episodic memory. The self is thought to be one of the core components of the phenomenology of episodic memory (Perrin, Michaelian and Sant'Anna, 2020).[3] Episodic memory typically involves autonoetic consciousness (Klein, 2014), which refers to the phenomenological aspect of episodic memory that affords a sense of reliving or re-experiencing the past event (Tulving, 1985). Key to the notion of autonoesis is an 'awareness of one's self existing in subjective time' (Szpunar, 2011, p. 410). In this way, the self is thought to be crucial to the phenomenology of episodic memory.

Despite this emphasis on the link between one's sense of self and the phenomenology of memory, the precise relation between them has been underexplored. In fact, even though it is increasingly acknowledged that there are various facets of the self, various elements that contribute to one's sense of self, this notion of the multifaceted self has played very little role in theorizing about the phenomenology of episodic memory. Getting clear about the complex phenomenology of episodic memory will involve getting clear about various components that contribute to the sense of self. This paper is a step in this direction. In particular, the paper aims to show that two issues in memory research that tend to be treated separately are actually intertwined, and that treating them as inextricable may shed new light on existing findings and open up novel avenues for research. These issues are the following:

[3] A striking example of the relation between the self and phenomenology is manifest in the patient R.B., discussed by Klein and Nichols (2012), who has lost a sense of ownership of his memories, the sense that the events he remembers belong to him. As Perrin, Michaelian and Sant'Anna suggest, this case is interesting precisely because 'the phenomenology of remembering at least typically involves a sense of the self' (2020, p. 3). We return to the case of R.B. below.

1. How to conceptualize the 'self' in the context of memory research?
   That is, how should we think about the agent or person that experiences an event and then recalls it at a later point in time?
   Existing research employs several different conceptualizations (e.g. experiential selves, narrative selves) but memory research would benefit from a more holistic approach to selfhood as being multifaceted (see e.g. Prebble, Addis and Tippett, 2013; Libby and Eibach, 2011; Ernst and Rathbone, 2019). For this, we can draw on theoretical work in the philosophy of selfhood that stresses exactly this multidimensional nature of selves (Neisser, 1988; Gallagher, 2013; Newen, 2018).

2. How to more fully account for the complex phenomenology of memory recall?
   That is, in a particular instance of remembering, which phenomenological elements can be delineated, and how do these jointly constitute an experience of remembering? Existing research tends to focus on visual phenomenology, but other aspects of phenomenology have been neglected. For instance, recent developments in 4E cognition point towards a hitherto neglected role for bodily, agential, and affective contributories to the experience of remembering.

We want to argue that these questions are interrelated: to fully elucidate the complex phenomenology of episodic memory recall (2), we need an inflationary notion of self, i.e. a broader understanding of the agent or 'self' that is remembering (1).

To substantiate the claim that the aforementioned debates may be mutually illuminating, we focus on the phenomenological feature of 'felt connectedness'. Autobiographical memory for one's personal past is thought to provide self-continuity, which refers to the 'knowledge and experiential sense of being the same person over time' (Bluck and Alea, 2008, p. 55). This self-continuity involves both cognitive and non-cognitive aspects, and may come in degrees: we feel more or less connected to previous selves (McCarroll and Cosentino, 2020). Self-continuity is hence reflected in how we *know* and *feel* we are connected to past selves (or detached or distanced from them).[4]

[4] This notion of 'felt connectedness' is similar to the notion of 'psychological connectedness' that is frequently used in the literature (e.g. Bartels and Rips, 2010). We use the

We show how a broader construal of the self enables us to better understand this connectedness (or lack of it) in memory. To achieve this, we adopt a two-step strategy.

First, we discuss an existing debate as a case study: the relation between visual perspective and (psychological) connectedness (and other phenomenological aspects) of episodic memory. Memories that are recalled from an observer perspective — memories in which one sees oneself from the outside — are typically associated with less connectedness (and less emotion) than those recalled from a field perspective — memories recalled from the inside. One intuitive idea is that such observer memories involve decreased psychological connectedness because one views the self from a detached perspective in much the same way that one would view another person. Nonetheless, distinguishing between different facets of the self, or emphasizing different aspects of the self, can lead to a more nuanced picture of the relation between psychological connectedness and visual perspective in memory.

Second, we show that we can further broaden the self and that this can impact the felt connection one has to the past. Specifically, we suggest that — in line with the recent trend of 4E cognition — embodied, embedded, ecological, and extended self-aspects should be taken into account for better understanding the phenomenology of episodic memory recall (again, taking psychological connectedness as an example). Before we get to that point, we first outline the notion of (psychological) connectedness, which is a relatively tricky concept to pin down.

2. Felt (Psychological) Connectedness in Memory

It is common to look back at one's life and to compare oneself to a former self (Libby and Eibach, 2002; Wilson and Ross, 2001). In such a comparison, one might notice important differences between who one is at the time of remembering and who one was at the time the

term 'felt connection' to show that we adopt a pluralist understanding of the factors that contribute to this phenomenological aspect of self-continuity, which can be both cognitive (e.g. sharing beliefs, values, etc.) as well as non-cognitive (e.g. feeling emotionally connected). Nonetheless, because the term 'psychological connectedness' is one that is frequently invoked in the literature, we sometimes employ it. As we have stated, though, the factors that contribute to connectedness in memory are not merely psychological.

memory was formed. There may be an important sense in which one feels *changed* (Libby, Eibach and Gilovich, 2005), where one has a sense of no longer being the person one used to be (Stanley *et al.*, 2017) or that one has made the transition 'from chump to champ', as Wilson and Ross (2001) put it.

In such cases, the remembering individual might experience a degree of *distance* (and hence feel less connectedness) regarding one's former self. This pertains to an intuitively intelligible but phenomenologically elusive experience where a former self is less similar to or less continuous with a present self. There is a sense in which one does not recognize oneself *in* the former self, or at least not fully. Experiencing such distance is quite common but may also be the result of, or intensified by, psychiatric illness (Dings and Glas, 2020) or invasive neurosurgical treatments (Dings and De Bruin, 2016).

For present purposes, several remarks are needed to delineate the phenomenon of psychological connectedness. First, the notion of 'psychological connectedness' as a concept can be found in the work on personal identity by Derek Parfit (1984), where the sharing of psychological properties such as beliefs, character traits, values, and goals are partly what constitutes psychological connectedness between past, present, and future selves. Parfit's concern in that work, however, was with the ontological conditions underlying psychological connectedness — whether one is, as a matter of fact, psychologically connected to a past or future self. Our concern, in this paper, is phenomenological, with a focus on the ways in which we can *feel* more or less psychologically connected to a past self. Psychological connectedness comes in degrees, and the present self can feel more or less psychologically connected to selves at different times (*cf.* McCarroll and Cosentino, 2020).

Second, it is also important to note that psychological distance (or a lack of psychological connectedness — we use these terms interchangeably) seems to be distinct from self-continuation *per se*. Colloquially put, it is perfectly intelligible when someone recalls a memory and remarks 'Yes that's me in one sense but not me in another sense'. In such statements, the former sense of 'me' seems to be an instance of numerical identity, where one admits that the person at the time of the episode is still the same person at the moment of recall, and perhaps even that there is some phenomenological sense of continuation. The latter meaning of 'me' is about qualitative or practical

identity, which is a more encompassing notion where one 'recognizes' or '*identifies with*' the person at the time of the episode.[5] In contrast to numerical identity, qualitative identity allows for various gradations, which is pivotal in the case of psychological connectedness: 'degree of connectedness can vary even within the identical persons' (Bartels and Rips, 2010, p. 50). For present purposes, we focus on psychological connectedness in the sense of qualitative identity.

Relatedly, it is also important to distinguish felt connectedness from autonoesis. Autonoesis is the phenomenological characteristic of episodic memory that allows one to re-experience an event (see Mahr and Csibra, 2018). While this notion may be related to felt connectedness, it is also importantly different, and hence our account is meant to explain a distinct aspect of the phenomenology of episodic memory. Autonoesis seems to pertain more to numerical identity (the past event is one in *my* past, even if I have changed substantially), whereas psychological connectedness seems to be more about qualitative identity (about the degree to which I may change over time). In this sense, autonoesis seems to pertain to identifying oneself in a memory, and is related to the experiential self, whereas we focus on felt connections in the sense of identifying-with.[6]

Third, it is *possible* (but perhaps uncommon) to experience psychological connectedness to someone other than yourself. You might inaccurately remember that you won the first prize in a particular contest (because it was in fact your sister who won) and experience psychological connectedness to that event and the person who experienced it (*cf*. Pillemer *et al*., 2015, on 'vicarious memories').

Fourth, if psychological connectedness is about identifying with the person at the time of the episode, the issue is not whether one is *able* to *identify* oneself in a memory, which seems to be about establishing whether there is self-continuation in the first place (see e.g. Lin, 2020). Rather, here we are concerned with cases where one has

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5 See Schechtman (1996) on the distinction between identity in terms of the reidentification question (numerical identity) and the characterization question (identifying with). See also Section 4 below.

6 It is important to note that autonoesis can still come in degrees (e.g. D'Argembeau and Van der Linden 2004). Arguably though, this relates to the nature of the simulated event and not to a graded nature of the self. We also acknowledge that there may be interesting links between e.g. the experiential self at stake in autonoetic consciousness and e.g. the embodied self at stake in felt connections. It is beyond the scope of the paper to elaborate on this more fully, but see e.g. De Vignemont and Alsmith (2017) for relevant discussions.

already identified oneself or recognizes oneself in a memory and, after comparison to one's current self, one *identifies with* that former self (or not), leading to an experience of a degree of psychological connectedness (or distance).

Schechtman (2021) has recently argued for a further subdivision concerning 'identifying with'. She writes that there are 'two different ways in which one can experience oneself as cut off from one's own past' (*ibid.*, p. 5). On the one hand, one might experience being cut off from one's past *self*. Schechtman takes the famous case of R.B. (*cf.* footnote 3 above) as well as Strawson's (2004) account of 'episodicity' to be exemplary here. She notes that, 'While each recognizes a literal sense in which he is the same person involved in the events remembered, both describe a lack of experienced identification with the subjects of memory' (Schechtman, 2021). On the other hand, we have cases that Schechtman describes as 'successful nostalgic recollection', in which 'one experiences oneself as cut off from past *events*, or *places*, or *people*, but not from *oneself* in the past'. She continues by highlighting that 'This distinction not only allows us to explain how such recollection can engender a sense of personal identity or continuity despite also involving a sense of distance; it also suggests a role the complex affect it evokes might play in generating this sense of identity' (*ibid.*).

In contrast to this subdivision, we think that it is fairly common for people to feel less connected (or disconnected) from a past *self* (as opposed to past events or places) in a way that is *unlike* the Strawson and R.B. cases. To account for these requires precisely the type of move that is proposed in this paper: to acknowledge the multifaceted nature of the self. That is, in the Strawson and R.B. cases the 'connection' at stake seems to pertain primarily to e.g. the 'experiential self', where the 'current experiential self' feels disconnected from a 'past experiential self'. However, if we acknowledge the wide variety of self-aspects that make up a particular self, then we can see that there are dozens of potential connections amongst those self-aspects. Indeed, we end up with a much richer and heterogeneous phenomenology of connectedness in memory.

To illustrate, consider that Schechtman continues by writing that 'It is therefore plausible to suppose that the absence of the experience of reanimating past affect is at least part of what causes (or perhaps constitutes) the sense of being a different person' (*ibid.*). We think that 'reanimating past affect' allows for degrees. You may be able to reanimate emotional component A but not B; or relive bodily

experience C but not D. Or you may relive bodily experience C but the way that it has been integrated into your self-narrative has changed over time, which would also arguably change the associated phenomenology.

Interestingly, Schechtman's account seems to go in the similar direction as the one we are proposing here, despite her emphasis being less (explicitly) on the intertwinement of selves and memory phenomenology. Taking an example from the work of Joan Didion on keeping notebooks, Schechtman highlights that 'It is not just the emotions experienced by her seventeen-year-old self that Didion cannot access, but her hopes, dreams, and interests; what thrills her, what bores her, what she would say or do in a given situation, and how, overall, she experiences the world and herself in it' (*ibid*., p. 6). While there is a degree of overlap with the position we are developing here and the project Schechtman is engaged in, there are important points of difference. First, Schechtman is focused on a particular class of autobiographical memory — treasured memories — that seem to have a particular complex mix of emotions. Our target phenomenon is broader: we seek to look at how the felt connection manifest in memory may arise for any recollection of one's personal past, not just the memories we treasure. Second, Schechtman's emphasis is on 'the self' and how past and present perspectives can comingle to constitute or give rise to a sense of personal continuity. Our account centres on how different facets of the self may give rise to a feeling of connection in episodic memory more generally.

To summarize the main components of our account: (1) we want to acknowledge the multifaceted nature of selves in order to make sense of memory phenomenology. This has repercussions for (2) how we think of 'felt connections' to past selves. That is, if there are different patterns or configurations of connections, then this inevitably broadens the set of possible felt connections. To illustrate, if we start with a preliminary list of self-aspects (see e.g. Gallagher, 2013, for a suggestion) that includes e.g. experiential self-aspects, bodily self-aspects, emotional self-aspects, and narrative self-aspects, then there may be connections among 'former narrative self and current narrative self', 'former emotional self and current emotional self', etc., and arguably even between e.g. 'former narrative self and current embodied self'. This results in a much more heterogeneous account which we think reflects actual memory phenomenology. For that reason, we think it also makes more sense to speak about 'felt connections' as opposed to 'psychological connections', given that not

all connections require cognitive endorsement. Psychological connections, in that respect, form a subset of felt connections. Finally, by acknowledging the multifaceted nature of selves it not only makes sense to broaden the domain of felt connections, but also other aspects of memory phenomenology, including perspectivity. In particular, (3) the multifaceted self opens up the possibility to investigate multimodal perspectivity, as opposed to the visual perspectivity that has been foregrounded in contemporary memory research. We will now turn to that research as a case study (*cf.* Peeters, Cosentino and Werning, forthcoming, for a more extensive overview).

3. Visual Perspective in Memory and its Effects

In memory and mental simulations more generally, people typically adopt a particular visual perspective. On the one hand, people might visualize an episode from a first-person perspective, in which the vantage point would be identical or highly similar to when they would actually experience the event (i.e. 'from one's own eyes'). On the other hand, people may visualize an episode from a third-person perspective, such that they see themselves as an object in the episode. Following Nigro and Neisser's (1983) landmark study, we will refer to these perspectives as *field* (first-person) and *observer* (third-person) perspectives.

Observer memories seem to be quite common, but some people seem to seldomly have them (*cf.* Radvansky and Svob, 2019), and some report their experiences to fall somewhere in between field and observer perspective (Dranseika, McCarroll and Michaelian, 2021). Despite this diversity, memory researchers have found that whether a memory is recalled from an observer perspective relies on several determinants. For instance, stressful events, or events that happened long ago, are reported to be commonly retrieved from an observer perspective (see McCarroll, 2019). Research has also found that the visual perspective that is adopted may affect the content of the memory as well as other phenomenological characteristics (Sutin and Robins, 2007). For instance, memories where an observer perspective was adopted focused more on how the remembering person looked, what they were doing, or where particular objects were located (McIsaac and Eich, 2002). When people adopt a field perspective, they are typically able to recall more bodily sensations and psychological states regarding the remembered event (Libby and Eibach,

2011). In terms of phenomenology, such instances of recall from a field perspective tend to include a greater sense of 'reliving' the episode (Nigro and Neisser, 1983; Libby and Eibach, 2002). Moreover, memories retrieved with a field perspective are often more emotionally intense (Berntsen and Rubin, 2006). In fact, Robinson and Swanson (1993) found that shifting from a field to observer perspective decreases the emotional intensity of a memory but shifting back to a field perspective does not increase the emotional intensity again.

Regarding the phenomenological aspect of a felt connection to a past self, it is often thought that observer memories involve less psychological connectedness than field memories (Sutin and Robins, 2008; Libby and Eibach, 2011). When recalling a past event from an observer perspective, one is, at least in some sense, viewing the self from the outside as if it were another person. And this 'othering' of a past self is sometimes taken to involve more psychological distance. As Pronin and Ross note, 'Perceiving one's past self as different from one's present self can elicit an observer-like focus on that past self' (2006, p. 207). In fact, it is often assumed that this external perspective involves adopting a detached perspective on the self, where one is somehow removed from the self. Although, as we show below, their own view is more nuanced, Libby and Eibach suggest that 'it is tempting to assume that first-person imagery [field perspective] necessarily connects the pictured event to the self in the present, whereas third-person imagery [observer perspective] detaches the pictured event from the self' (2011, p. 197).

Yet, on a more subtle view, observer memory is not intrinsically linked to psychological distance. Depending on which aspect of the self one focuses on, observer memories may increase or decrease psychological connectedness to one's past self (McCarroll and Cosentino, 2020). Getting clear about various facets of the self affords an understanding of the complex phenomenology of episodic memory. Importantly, Libby and colleagues acknowledge this point. They argue that existing research has not sufficiently taken into account distinctions between the *experiential self*, i.e. the synchronic agent who experiences the here-and-now and deals with the immediate environment, and the conceptual self, i.e. the reflective narrative agent who contemplates their life and fits events into a broader meaning. In discussing their 'opponents' in the debate, they suggest that:

> The alternative models appear to conflate these two aspects of the self by assuming that the lack of experiential simulation that occurs in third-

> person imagery necessarily corresponds to a lack of connection with the pictured self altogether. By the model we have proposed, there is not a one-to-one relation between perspective and perceived self-ownership of actions. First-person imagery represents an event in terms of the experiential I, and third-person imagery represents the event in relation to the conceptual me. Thus, first-person imagery could be considered to merge past and pictured selves on an experiential level. However, third-person imagery does not entail detaching the event from the self altogether. In fact, third-person imagery leads people to understand the event in relation to broader self-knowledge, which could result either in bolstering or diminishing the connection between present and past selves on a conceptual level. For this reason, picturing a past or future self from the third-person perspective is not the same as detaching it from the self altogether, as would be the case with imagining the event happen to another person or imagining being another person watching the self. (Libby and Eibach, 2011, p. 224)

The way that the phenomenological aspect of feeling connected to a past self can change, depending on which facet of the self that one focuses on, shows the importance of recognizing different aspects of the self when thinking about the phenomenology of episodic memory (*cf*. Kinley *et al.*, 2021). What we want to suggest now is that focusing on the Jamesian 'I' and 'me' selves (*cf*. James, 1890), while a step in the right direction, only accounts for two aspects of what is actually a multifaceted self.

4. Further Broadening the Self: Exploring the Relevance of Embodied, Ecological, Extended, and Embedded Self-Aspects

Memory researchers have recently highlighted that there is a tendency in memory research to only investigate *parts of the self* (Prebble, Addis and Tippett, 2013; Libby and Eibach, 2011; Ernst and Rathbone, 2019). We have seen in the previous section that Libby and Eibach (2011) take a step in the right direction by emphasizing the *dual-faceted* nature of selves, i.e. including synchronic aspects ('the experiential I') as well as diachronic aspects ('the conceptual me') (see also Prebble, Addis and Tippett, 2013). Here we argue that we should go even further and acknowledge the complete *multi-dimensionality* of selves (*cf*. Neisser, 1988; Gallagher, 2013; Newen, 2018).

There are several self-aspects that could be investigated in this regard, but in this section we limit ourselves to extended, embodied, ecological, and embedded self-aspects (and how these are inextricable

from the already mentioned experiential and narrative self-aspects). First, because the recent trend of 4E cognition has shown that these self-aspects modulate various forms of cognition, so it may be assumed that memory is no exception. Our aim here is not to provide an exhaustive account of the impact of these 4E components but rather to explore their relevance. For instance, we substitute 'enactive' views on cognition, which is more commonly subsumed under 4E cognition, with 'ecological' views.[7] This ties in with our second reason, namely that these particular self-aspects seem crucial for better understanding psychological connectedness. In this respect, consider research on *state authenticity* which showed that people 'feel like themselves' primarily when they are interacting with their environment in the right way (*cf.* Schmader and Sedikides, 2018). Thus, experiences of bodily agency seem pivotal for understanding feelings of 'being oneself'. That is, not recognizing the person in the memory, or experiencing ambiguity regarding the person in the memory, may be due to a discrepancy between, for example, one's self-narrative and the bodily experiences associated with the recalled event (Dings and Glas, 2020). These points suggest that the embodied, embedded, ecological, and extended self-aspects may play a bigger role in psychological connectedness than hitherto assumed in memory research. (Note that in the following subsections we discuss these self-aspects separately but, as we will see, they are in fact strongly intertwined.)

4.1. Extended self-aspects

The idea of the self being 'extended' has lately become more in vogue on account of the influence of the extended *mind* thesis (*cf.* Clark and Chalmers, 1998; Heersmink, 2020). However, we can already find this idea in the works of William James (1890), as well as in more recent empirically grounded work (see e.g. Belk, 1988). In the past few decades, the idea that the self 'extends' has also reached memory research. For instance, Cunningham *et al.* (2008) have shown that the ownership of objects affects the recall of memories concerning those objects. The proposed mechanism is that this works in tandem with the self-reference effect: owning objects infuses them with self-relevance, thereby leading to a distinct (and more elaborate)

[7] Enactivism also emphasizes interactions with the environment, but we want our account to be neutral about the role of content in remembering and many forms of enactivism emphasize its non-contentful nature (e.g. Hutto and Peeters, 2018).

processing of the object leading to more ease of retrieval (see also Van den Bos *et al.*, 2010).

Another angle on extended self-aspects is provided by Heersmink (2017), who argues that the self can also be extended by means of human–computer interactions. In his words, 'the complex web of cognitive relations we develop and maintain with other people and technological artifacts partly determines our self' (*ibid*., abstract). This ties in directly with memory because, as Heersmink shows, people who suffer from memory deficits (as well as healthy individuals) may rely on lifelogging technologies instead of 'internal' memory to establish and maintain their autobiography. What is crucial for understanding the relation between extended self and memory is what Heersmink calls *evocative objects* (*ibid.*). These are artefacts in our everyday life (such as photos, journals, artwork, souvenirs, etc.) which, according to Heersmink, may trigger and even constitute autobiographical memories (see also Van den Hoven, Orth and Zijlema, 2020). Even more so, given people's behaviours to actively transform their environments such as to fit their self-image or self-narrative, Heersmink (2020) has shown that we cannot separate the (narrative) self from the (narrative) niche that it lives in. Such a niche fulfils several functions regarding identity, action, and memory (*cf*. Heersmink, 2020; Dings, 2019).

What does this imply for understanding the phenomenology of memory (e.g. visual perspectivity and psychological connection)? How might extended self-aspects contribute to our understanding of memory phenomenology? The point would be that memory research has to acknowledge the heterogeneity of the objects in the world to a particular individual. Those objects that are part of this person's extended self may be processed differently than other, irrelevant objects.

It seems plausible that whether something is 'mine' affects the phenomenology in terms of psychological distance. Cunningham *et al.* (2008, p. 313) remark that the effects of ownership on cognition are widespread but that their effects on memory have not been explored. Since then, some studies have been undertaken in this respect, yet memory *phenomenology* remains under-investigated. Nevertheless, the view outlined here enables us to form hypotheses that may be empirically tested. For instance, that (1) recalling a memory containing an object that you no longer possess is more likely to have decreased felt connection compared to a memory of an object that you still possess. And, even if it doesn't result in decreased connectedness,

it can still affect the emotional content of the memory and hence affect the phenomenology of the memory. In addition, we could hypothesize that (2) more thorough integration of an (evocative) object into the narrative niche increases the felt connectedness in memories concerning that object. Having access to the object in the present will trigger memories of that object, and one's past interactions with it, and can hence provide a link to the past and a sense of connection and continuity between past and present selves.

Taking a case that resonates with James's notion of the material extension of a person's self, some authors have recently argued that aspects of the realm of affectivity, such as sentiments, emotional dispositions, etc., can also be extended into the external environment (Colombetti and Roberts, 2015). One further example of this is the idea of dispositional character traits, which 'may be realized by systems whose physical vehicles extend across biological boundaries, whether through an agent's self-conscious organisation of her environment, or just in virtue of the materials (text, clothing, technology) with which she adorns herself' (*ibid*., p. 1260).

Importantly for our purposes, character traits are one of the factors that can affect felt (psychological) connectedness in episodic memory. The more traits one shares with a previous self, the more one is likely to feel connected to that self. To illustrate with a mundane example, we have all seen photographs of ourselves in which we are horrified by the clothes we are wearing in a previous moment of our lives. While one aspect of this horror could be simply sartorial shock ('How could I ever have worn *that*!'), part of the response when remembering such moments, at least in some cases, may relate to the idea that the clothes one was wearing at the time no longer reflect the type of person one is now in the present. One's previous choice of garments may no longer realize one's dispositional character traits and one is less likely to feel connected to that past self.

4.2. Embodied self-aspects

How might bodily self-aspects play a role in memory? Ianì (2019) reviewed recent research on the role of embodiment for memory processes to substantiate his sensorimotor model (SMM), which suggests that 'during encoding people register perceptual and motor information, and later on, when the encoded event is recalled, these representations are reactivated' (*ibid*., p. 1748; *cf*. Perrin, 2021). Thus, on the SMM 'a given event fundamentally consists in perceptual

information so that reactivation of the same sensorimotor circuitry originally involved in its perception is also at stake whenever the event is recalled or comes to mind' (Ianì, 2019). Two predictions follow from this view. First, that 'if memories are simulations reconstructing an original event along with its relevant sensorimotor components, then triggering those components at recall should speed up the retrieval process' and, second, 'sensorimotor simulation may be blocked by a concurrent task involving the same sensorimotor resources' (*ibid*., p. 1750; see also Dijkstra and Zwaan, 2014; Dijkstra and Post, 2015). After reviewing recent experimental data in studies on eye movement, gestures, body posture, and bodily expression of emotions, Ianì notes that there is certainly some evidence that seems to confirm these predictions, but that there is also some conflicting data, indicating the need for more research on these matters.

For present purposes, what is most crucial is Ianì's suggestion that one of the most pertinent domains for further exploring the relevance of embodiment is memory phenomenology, e.g. the subjective sense of reliving an episode. Taking into account the issue presently at hand, a prediction could be that the similarity in sensorimotor states during both initial perception and memory recall is a crucial contributory to psychological connectedness to that former episode. Thus, someone who has undergone a significant bodily change (e.g. someone who, following a car accident, ends up partially paralysed) might feel less psychological connectedness to memories prior to the accident, not due to some reflective evaluation but rather due to a lack of 'bodily connectedness', as it were. This would also enable a novel interpretation of the finding within construal-level theory (Trope and Liberman, 2010) that temporal distance increases psychological distance: as one ages, one's body inevitably changes as well, and these bodily changes may contribute to an increase in psychological distance.

We can refine this idea by acknowledging the 'plurality of perspective' in the phenomenology of episodic recall. That is, 'one may adopt an *external* visual perspective and yet maintain an *internal* perspective in other embodied, emotional, or cognitive modalities. Yet many theorists retain, if only implicitly, an exclusive association between kinaesthetic, embodied, or emotional imagery and an *internal* visual perspective. This is coupled with the parallel position that an external visual perspective is (necessarily) isolated from such forms of embodied imagery' (McCarroll and Sutton, 2017, pp. 119–20). Drawing on evidence from the domain of film, sports, and autobiography, McCarroll and Sutton highlight that perspectivity is heterogeneous

and that there may be complex relations amongst its components (*ibid.*).

Going beyond mere visual phenomenology when it comes to perspectivity may also enable us to better understand psychological connectedness. On the traditional view, field perspectives are associated with a bodily sense of reliving the event, whereas observer perspectives offer a more detached view. As we saw in Section 3, some researchers hold that this comes with a decreased psychological connectedness. But if we keep in mind the claim by McCarroll and Sutton, then that discussion only concerns the *visual* perspective. In recalling an episode, there may also be other 'internal' perspectival modalities such as affective or bodily states. As a result, 'one's observer perspective memories "*have enough of oneself in them*" to result in a rich, *psychologically continuous* phenomenology' (McCarroll, 2019, p. 270, italics in original text). Thus, visual perspectivity is but one component of psychological connectedness — bodily perspectivity may be another.

We might here also think about the view put forward by Rowlands (2017), which foregrounds the importance of bodily experiences. On this view, it is possible that there are instances of 'forgetting' where the content of the memory is gone but the act of remembering remains. Take, for instance, remembering the house one grew up in where one does not actually remember any (visual) details of the house or its layout, but one does still 'feel' the staircase in how one would run up (*ibid.*, p. 58). In such cases, the 'bodily remembering' is more clear and vivid than any episodic or semantic memory. Such memories may lack the full-blown autonoetic character of episodic memory, or the sense of mentally travelling in time, but they may still involve a felt connection to a past self.[8] With respect to felt

[8] Interesting questions arise here about the bounds of episodic memory. Can there be episodic memory without visual imagery? Our view is compatible with Rubin's (2006) basic systems model, which holds that episodic memories are constructed from interactions between many basic systems (e.g. sensory modalities, language, emotion, etc.). Plausibly then we can have episodic memory without one (or more) of these components. How many are required for full-blown episodic remembering? Is the experience of one or more of the self-aspects sufficient for one to have an experience of episodic remembering? It is beyond the scope of the paper to answer these questions completely, but what our view shows is that at the very least the boundaries of forms of memory may overlap: embodied remembering, which is quintessential to procedural memory, may still involve a felt connection to a previous self and hence, in a sense, be episodic to a degree. Thanks to an anonymous reviewer for raising these interesting questions.

connectedness, this might point to another manner in which bodily self-aspects could be important. In this case: you may identify with the child who used to live there not based on visual scenes of you living there but based on the bodily (re-)experiencing of running up the staircase. Indeed it seems fairly plausible that we 'remember' — in the sense of Sheets-Johnstone's (2003) concept of kinaesthetic memories — the way in which our body feels and moves and that any (radical) divergence in our embodiment might therefore contribute to an increased felt distance regarding a former self.[9]

In this regard it is important to notice that some forms of felt connection to a past self through the embodied (sensory, affective, etc.) components of memory may not require a reflective (cognitive) sense of being the same self, but just the mere feeling of being the same self. Take the famous Proustian example of the *madeleine* memory (van Campen, 2014). The narrator eats a piece of cake dipped in tisane, and is transported back to a lost time, not reflectively at first, but uncertainly, through a re-experiencing of the bodily sensations enacted at the time of the original experience. Indeed, as Francesca Righetti has recently pointed out, the original (perceptual) experience in this example was a pre-reflective experience, in which there are 'complex experiences of the lived body (which include physiological, emotional and environmental sensations) that have not been *thematized* at the moment of first perception' (2021, p. 3). When remembering this experience, Proust's narrator is getting back to this original pre-reflective self-awareness. Of course, the memory may become explicit, in suddenly revealing itself, but this results in a complex mix of implicit and explicit memory, where the past and present selves are both in view (Sutton and Williamson, 2014).

The sense of implicit bodily memory may even manifest a felt continuity in cases where explicit recollection is difficult or impossible. Fuchs (2012) provides a rich taxonomy of embodied forms of memory, in which memories may not only pertain to our own bodily

[9] Trakas (2021b) discusses several of these 'embodied memory' accounts, but note that she is concerned with a different set of questions, such as whether such embodied memories should not be considered procedural forms of memory. In the present paper, the emphasis lies on clarifying the memory phenomenology of felt connectedness, regardless of whether the episodic, semantic, or procedural memory systems contribute to that. For instance, Trakas (2021) quotes Fuchs for whom 'body memory does not represent the past, but re-enacts it' (Fuchs, 2012, p. 19) and argues instead that her account of kinetic memory suggests that the body can indeed represent the personal past by re-enacting it.

state and skills but also to certain atmospheric perceptions of our body as it interacts with the world or with other people. Crucially, this variety of embodied forms of memory feeds into our sense of self and identity. Fuchs (2020) argues that patients suffering from dementia might lose some of their reflective capacities, but may rely on their embodied forms of knowing and remembering for a sense of self-continuity. Although this is not the same as the phenomenology of felt connections, it once more seems plausible that such bodily components do contribute to people with dementia feeling connected to their former selves.

4.3. Ecological self-aspects

In his taxonomy of body memory, Fuchs (2020) ties 'situational memory' directly to the way in which our body may remember typical interactions with its environment. In this respect, Fuchs talks about situational memory contributing to our engagement with affordances, i.e. possibilities for action offered by the environment. The work of James J. Gibson, who coined the term affordances, was predominantly focusing on visual perception rather than memory.

One of the main investigations into the role of memory in engaging with affordances is the one offered by Glenberg (1997). Gibson claimed that affordances are perceived in relation to one's own embodiment (e.g. whether a staircase is perceived as affording climbing depends on bodily features such as the length of my legs). Glenberg supplements this line of thinking by arguing that the meaning and relevance that we constantly experience in our everyday lives, and which is crucial for adaptively and efficiently navigating our environment, requires a close interconnection between embodied experiences and memories of past embodied experiences. Glenberg thus argues in favour of a novel answer to the question 'What is memory for?':

> Its primary function is to mesh the embodied conceptualization of projectable properties of the environment (e.g. a path or a cup) with embodied experiences that provide nonprojectable properties. Thus the path becomes the path *home* and the cup becomes *my* cup. This meshed conceptualization, the meaning, is in service of control of action in a three-dimensional environment. (*ibid.*, p. 4)

Although this view certainly foregrounds the importance of embodiment and bodily agency, Glenberg unfortunately says relatively little about the phenomenology of memory recall and the role of the self, let

alone about the interrelation between those in terms of psychological connectedness. The role of the self seems to lie primarily in modulating the 'meshing' process in a particular direction:

> [A]utobiographical memory arises from suppressing the environment: once the environment is suppressed, conceptualization is controlled by trajectories and bodily constraints on mesh rather than the projectable features of the environment. Thus recollection is similar to prediction. Both are effortful, both depend on trajectories and both are constrained by the body. (*ibid*., p. 5)

> I suspect that a major factor in the development of a concept of self is just the ability to suppress environmental information. Until that skill is mastered, conceptualization is controlled by the clamped environment; after that skill is mastered, conceptualization can be guided by oneself. (*ibid*., p. 6)

Although Glenberg highlights the interrelation between affordances and memory, he does not provide an account of how selfhood is interrelated in this regard. Such an account seems required for understanding felt psychological connectedness in memory phenomenology. Thus, we draw on our recent work which aims to elucidate the complex ways in which various self-aspects may contribute to our perception of and engagement with affordances. Most notably, Dings (2021) highlights that narrative self-aspects feed into our agential phenomenology by identifying possibilities for action at a higher level of abstraction, i.e. as meaningful. This has repercussions for self-experience and self-understanding. As Dings and Glas (2020) point out, experiences of authenticity, of 'feeling like oneself', have to do with a coherence amongst reflective self-aspects such as narrativity, with unreflective self-aspects such as engagement with affordances. That is, we may increase felt connectedness by establishing congruence between our bodily experiences and our self-narrative (Dings, 2019). If we achieve such congruence, affordances are not experienced as merely 'relevant' but as meaningful (Dings, 2021).

In line with this account, we might suggest that the *meaningfulness* of an interaction (in terms of coherence with, or function in, a self-narrative) affects the phenomenology of a memory of that interaction, for instance in terms of visual perspectivity (Libby and Eibach, 2011; Dings and Newen, 2021), but likely also in terms of psychological connectedness more generally: for instance, with regard to aspects of the bodily self (*cf*. Fuchs, 2020). But also with regard to extended self-aspects, if we acknowledge that a sufficiently managed environment, with many meaningful affordances, may constitute a narrative 'niche',

as noted in Dings (2019). This view thus foregrounds the tight interconnection between narrative self-aspects, experiential self-aspects, as well as embodied, extended, and ecological self-aspects. That is, degrees of felt connectedness have to do with degrees of coherence amongst various self-aspects at the time the event took place and the time at which it is recalled. For this we need to acknowledge that the experiential content of memory is dependent on both the person I was when I initially experienced the event, as well as the person that I am when remembering (McCarroll, 2019; Dings and Newen, 2021). Coherence amongst different aspects of those multifaceted selves contributes to different degrees of felt connectedness.

4.4. Embedded self-aspects

Humans are cognitive agents that are embedded in the world, a world that is rich with material, technological, and social aspects. Indeed, we use often use these elements of the external world to support and scaffold our cognition, including our memories for the personal past (Michaelian and Sutton, 2013; Heersmink, 2018), and construct a sense of self (McLean, 2016). Yet, arguably these aspects of the embedded nature of the self may also play a role in modulating the phenomenology of episodic memory (Mahr and Csibra, 2018). Taking the social aspect of this embedded self as a starting point, we describe some of the ways in which we may experience felt connections with a past self (or their lack) through stability (or change) of the norms that govern the self over time.

As socially embedded creatures, we learn the specific norms of the times, places, and cultures of our lifeworlds. Indeed, 'many person-level capacities are only intelligible as the capacities of situated agents operating within a context of socially instituted norms and commitments' (Huebner, 2013, p. 15). This is not to deny that there are internal structures that underpin social cognition, but to emphasize that much of cognition takes place in a world that is governed by norms. We are social and enculturated beings (Menary, 2013). Nonetheless, the rules and norms that govern and constrain the world and agents acting in it may change over time. It is these changes that may affect how one feels connected to a past self that is no longer subject to the same normative framework.

Linking the normative to questions of identity, and indeed memory in a Lockean sense, Schechtman tells us that living the life of a person 'is living a life that involves what Locke terms "forensic" activities.

Roughly speaking this means employing normative judgments and recognizing ourselves as subject to them' (2012, p. 335). In other words, as selves (persons) we 'need to think of ourselves as governed by norms in order to be capable of being so-governed' (*ibid*.). Our lives are entangled in 'an array of complex and sophisticated interactions with other persons which involve, among other elements, adherence to moral, cultural, or personal norms (although the details of these norms may differ from context to context' (Schechtman, 2014, p. 112). What's important, for our purposes, is that the norms that govern us or that we adhere to may change over time, and this may affect the sense of connection one feels to a past self.

Take the case of religious conversion, which is discussed by Schechtman as involving a change of identity in the sense of the characterization question. Religious conversion, in other words, is typically thought to be 'a case of identity-threatening psychological change' (Goldie, 2012). In cases of religious conversion, or other instances of radical realignment of core values, we may be the same human being (numerical identity), but we may not feel ourselves to be the same person anymore. In such cases we may have access to vivid memories of our past but, given the shift in our normative framework and moral compass, we may no longer feel connected to our past selves. We don't *identify with* those past selves because we are no longer governed by the same set of norms.

This shift in values and the lack of connection to a past self is often seen in the world of social media, where external memory is more or less permanent (Mayer-Schönberger, 2011), and offers us reminders of past instances of inappropriate behaviour. If the apologies we frequently see posted on social media for these misdeeds and moral missteps are genuine, then there seems to be a shift in attitudes and values over time that affects how we see those past actions and the self that undertook them. The comedian Sarah Silverman offers a poignant example. Reflecting on how she previously engaged in a blackface sketch in one of her acts, she looks back on it with regret from the present moment. In an interview with *GQ* she tells us: 'I don't stand by the blackface sketch. I'm horrified by it, and I can't erase it. I can only be changed by it and move on.' According to Silverman, she thought she was 'dealing with racism by using racism', but now, she reflects, 'I don't get joy in that anymore. It makes me feel yucky. All I can say is that I'm not that person anymore' (Magary, 2018).

One way of interpreting Silverman's claims is that her normative outlook has changed and this affects how she recalls that past event. As someone with a liberal perspective, Silverman's view shifted from thinking that engaging in blackface might be an appropriate way of tackling racism in society more generally, to a new normative outlook in which blackface is not appropriate in any circumstance. The norms that govern Silverman's activities have altered over time, and even though she doesn't provide insights into the phenomenology of her memories for those past events, it seems plausible that she feels less connected to her previous self. The shift in normative framework produces a shift in felt connection to a past self. After all, she is no longer the same person as she was back then.

5. Conclusion: The Complex Phenomenology of Episodic Memory Recall

There is thought to be a rich connection between the self and the phenomenology of episodic memory. Yet this connection is typically discussed without acknowledging that there are many facets of the self, each of which may impact the phenomenology of episodic memory. The self is a multidimensional, rather than a unidimensional, construct. Inspired by work on 4E cognition, and focusing on the phenomenological feature of felt connections, we have demonstrated how the phenomenology of episodic memory can be modulated by focusing on different facets of the self. The self involves embodied, extended, embedded, and ecological dimensions, all of which can modify the way in which we experience the recall of events in our personal pasts. We have shown that whether one feels more or less connected to a previous self depends on which aspect of the self is in focus.

Our account is not meant to be a revisionary account of the phenomenology of memory — it is not to deny that autonoesis is a phenomenological aspect of episodic memory — but rather to emphasize a fuller picture and move beyond purely autonoesis-based accounts. Our framework for broadening the notion of the self may then be used to explain or predict potential differences in the phenomenology not only of episodic memory but a range of episodic simulations such as future-oriented simulations. Consider, for example, the end of history illusion (Quoidbach, Gilbert and Wilson, 2013), according to which people typically believe that they have changed a lot from previous selves but will change relatively little in the future. It might be that in

memory, with hindsight, one can see, and bodily feel, the self changing. In episodic future thinking, however, with the end of history illusion, it may be that we project our present selves, or ones that are very similar, into the future scenario and so we don't envision change in ourselves. By broadening the notion of the self and looking at how connected we feel to that self, our account can help explain some of the ways in which remembering the past and imagining the future may differ phenomenologically.

Acknowledgments

The authors would like to thank Marta Caravà, Anco Peeters, Marya Schechtman, Denis Perrin, and two anonymous reviewers for very helpful comments on this paper. Chris McCarroll would like to thank Paloma Muñoz for helpful conversations about the content. Roy Dings gratefully acknowledges funding by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation), grant 419046236 for the DFG Research Unit FOR2812 'Constructing Scenario's of the Past'.

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Paper received January 2022; revised April 2022.