



# Episodic memory and the feeling of pastness: from intentionalism to metacognition

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## Abstract

In recent years, there has been an increasing interest among philosophers of memory in the questions of how to characterize and to account for the temporal phenomenology of episodic memory. One prominent suggestion has been that episodic memory involves a feeling of pastness, the elaboration of which has given rise to two main approaches. On the intentionalist approach, the feeling of pastness is explained in terms of what episodic memory represents. In particular, Fernández (2019) has argued that it can be explained in terms of memory representing itself as being caused by a past perceptual experience. On the metacognitive approach, which we have recently developed in (Perrin et al., 2020), the feeling of pastness results from the monitoring and interpretation of the processing features of episodic remembering. In this paper, we show that the metacognitive approach should be preferred over the intentionalist approach. We argue that intentionalism, and Fernández' causal self-referential view in particular, ultimately fail as accounts of the feeling of pastness. The difficulties faced by intentionalism allows us to single out three constraints that any satisfactory account of the temporal phenomenology of episodic remembering needs to meet. We conclude by arguing that the metacognitive view satisfies those constraints in a neat way, and as such, that it should be preferred over intentionalism.

**Keywords** Episodic memory · Phenomenology · Feeling of pastness · Content · Intentionalism · Metacognition

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## 1 Introduction

In recent years, there has been an increasing interest among philosophers of memory in the questions of how to characterize and to account for the temporal phenomenology of episodic memory. According to some philosophers, episodic memory involves a conscious experience of the past, which is often described in (using a term of art) affectivalist terms, i.e., as involving a *feeling of pastness*.<sup>1</sup> Endorsing the main approach to account for the phenomenal features of mental states nowadays, Fernández (2019) has developed an intentionalist view according to which the phenomenology of episodic memory depends on its content. Specifically, he has argued that when it comes to the feeling of pastness, it can be explained by the fact that memory possesses causal self-referential contents; in other words, that memory represents itself as being caused by a past perceptual experience. Recently we have designed a distinct, empirically-grounded metacognitive view that casts doubts, we think, on the correctness of intentionalism about the temporal phenomenology of episodic remembering (Perrin et al., 2020). While our focus elsewhere has been on the positive aspects of our view, a more detailed discussion of how it opposes its main rival, intentionalism, is required to fully motivate it.

In this paper, we set out to fill in this gap by offering a systematic discussion of why intentionalism is problematic and why a metacognitive account should be preferred. Our overall strategy is to point out on which counts intentionalism fails, and to show that the metacognitive view succeeds on precisely those counts. More specifically, we first argue that intentionalism ultimately fails as an account of the feeling of pastness. In doing so, we will focus on the intentionalist account provided by Fernández (2019). We note from the outset that our focus on Fernández's view is not due to exegetical interest, but rather because his view is the only systematic attempt to develop the intentionalist approach in the current literature. Along the way, we will gather three constraints for any satisfactory account of the temporal phenomenology of episodic remembering. In particular, we will build on empirical research on attributionalist perspectives on remembering to argue that the feeling of pastness is not sensitive to the content of episodic memory, but rather to its procedural features and the context in which a memory happens. Second, we will argue that the metacognitive account we developed elsewhere in detail (Perrin et al., 2020) is capable of making sense of these facts concerning the nature of the feeling of pastness. According to what we will call the *metacognitive view*, the feeling of pastness is an attribution that we make on the basis of the procedural features of episodic remembering. Given

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<sup>1</sup> An important issue here concerns the specific sense in which the feelings involved in the temporal phenomenology are affective states. Roughly put, there are two main views on the table. On the inferentialist approach, they are *intuitive* states resulting from the conjunction of an inferential process of which they are the conclusion, and of the subconscious character of this process. As Koriat puts it: “the phenomenal quality could be explained in terms of the idea that experience-based judgments are based on an inferential process that is not available to consciousness, and hence the outcome of that process has the phenomenal quality of a direct, self-evident intuition” (Koriat, 2007, p. 314). On the embodied approach, feelings are *bodily* states in nature, thus properly affective. As Dokic puts it: “They are diffuse affective states registering internal physiological conditions and events” (2012, p. 307). Since our argument is orthogonal to this debate, in what follows we will take it for granted that feelings are affective states at least in a loose sense. See our (Perrin et al., 2020) for more details.

that the underlying processes responsible for making such an attribution are informationally opaque and context-sensitive, we conclude by suggesting that, insofar as the feeling of pastness is concerned, the metacognitive view should be preferred over intentionalism.

We proceed as follows: Sect. 2 introduces the idea that episodic memory involves a feeling of pastness and situates it in the context of recent research in the philosophy and psychology of memory. Section 3 criticizes intentionalism by focusing on Fernández' own elaboration of the view. We begin by discussing intentionalism in more detail (Sect. 3.1), and proceed to argue that Fernández' reliance on the notion of an "experience of content" is problematic (Sect. 3.2). Section 4 then considers the limitations of the more general claim that the feeling of pastness depends on the content of episodic memory. We argue that content is neither sufficient (Sect. 4.1) nor necessary (Sect. 4.2) for explaining the feeling of pastness. Building on this critical discussion and on the constraints singled out, we then proceed to show in Sect. 5 that a metacognitive account nicely accommodates these constraints. We thus conclude that it must be preferred over intentionalism.

## 2 The feeling of pastness

Tulving (1983, 1985, 2002a, 2005) is famous for introducing, in the context of psychology, the notion of episodic memory as a form of declarative memory distinct from semantic memory. One of the core features of what he conceives of as the episodic memory system is the kind of conscious experience that is characteristic of its outputs. On Tulving's view, episodic memory is responsible for producing representations of past events, which are typically accompanied by an auto-noetic form of consciousness that allows us to 'mentally travel' back to past subjective time. In other words, episodic memory provides us with "... a unique awareness of re-experiencing here and now something that happened before, at another time and in another place" (Tulving, 1993, p. 68); it allows us "to consciously re-experience past experiences" (Tulving 2002a, p. 6). Remembering an event episodically thus differs from remembering that same event in a semantic way. When we remember semantically, we become aware of the fact that the event occurred, but this form of awareness—which Tulving calls noetic consciousness—does not involve a sense of "re-living" or "re-experiencing" the event in question. In brief, auto-noetic phenomenology is taken to be a hallmark feature of episodic memory,<sup>2</sup> and this idea has played a crucial role in various debates in philosophy and psychology, such as the debates on how to distinguish among different types of memory, how to conceive of the relationship between memory and imagination, and how to account for memory markers.

Arguably, auto-noetic phenomenology is characterized by a variety of features. Though there is no consensus on the exact list (Klein, 2013, p. 4; Fernández, 2019, chap. 4–5; Mahr, 2020, p. 4, Perrin et al., 2020), the temporality feature—i.e., that episodic memory makes us aware of the past—is often and uncontroversially taken to

<sup>2</sup> Tulving sometimes goes as far as saying: "Auto-noetic awareness (...) represents the major defining difference between episodic and semantic memory" (Wheeler et al., 1997, p. 350).

be characteristic of auto-noetic phenomenology.<sup>3</sup> Given that we do not intend to give a complete account of auto-noetic phenomenology, we will, for the purposes of this paper, focus solely on the experience of time in episodic memory.

Various attempts have been made in psychology to account for what we will call the *pastness* feature of episodic remembering. Two such attempts have become particularly prominent. The first, *metarepresentationalism*, says that the experience of mentally reliving a past event is due to a metarepresentational “comment” built into the content of a memory during encoding (Perner, 2000, 2001; see Mahr and Csibra, 2018 for a recent endorsement). That is, when one experiences an event, one does not only encode information about the event, but also a “comment” that the information relative to the event has been gathered through past personal experience. As a consequence, when one remembers, one is not only aware of a past event, but also of the fact that one’s current awareness of it derives from one’s past experience of it. In sum, one is aware of the event as experienced in the past.

It is not clear, however, whether a metarepresentational comment of this sort can secure the pastness feature of episodic recollection. In particular, it provides us with propositional knowledge of the relationship between one’s memory and a past experience—i.e., one is aware of the fact that one’s current awareness of the event represented derives from one’s past experience of it—and should this knowledge occur at retrieval, one would merely know that one experienced the remembered event, which is in obvious contrast to mentally re-experiencing it, for the latter involves experiencing the event as belonging to one’s personal past (Dokic, 2014). Arguably, therefore, metarepresentationalism fails to account for the affective dimension of the pastness feature, that is, that when one remembers episodically, one does not merely know that an event is past, but rather experiences or feels it as being past.

Thus, the second attempt to account for the pastness feature, *affectivalism*, says that the phenomenology of episodic remembering is a feeling or a set of feelings accompanying the information retrieved through the episodic memory system. There is no consensus among affectivalists about the specific nature of auto-noetic phenomenology, some simply taking it as being due to a dedicated pre-wired system that is part of the structure of the mind (Klein et al., 2004 and Klein, 2013, 2015a, b, following Tulving, 2002), while others suggest that it is the end-product of underlying processes (Jacoby et al., 1989, Dokic, 2014, and Perrin et al., 2020). The same absence of consensus is also true, in particular, of the temporal component of auto-noetic phenomenology. Before proceeding to tackle the latter issue, let us simply say that we

<sup>3</sup> More recently, Tulving has distinguished between ‘auto-noesis’ and ‘chronesthesia’, with the former referring to consciousness of the self in episodic memory, and the latter being the “the conscious awareness of subjective time” (2002b) that is characteristic of episodic memory. However, as Michaelian (2016, p. 192–3) notes, “[c]hronesthesia and auto-noetic consciousness are developing concepts, and the terms are not always used in consistent ways. On one view, they refer to the same capacity but emphasize different aspects of that capacity, auto-noesis putting the accent on the subject who mentally travels in time, while chronesthesia puts the accent on the subjective time in which the subject travels (Szpunar, 2011). On an alternative view, it may ultimately be more useful to define auto-noetic consciousness purely in terms of awareness of one’s self, whether or not in subjective time, and to define chronesthesia purely in terms of awareness of episodes in subjective time, whether including one’s self or not”. Since these subtleties will not matter for our argument, we will use ‘auto-noesis’ or ‘auto-noetic consciousness’ as referring to a unified capacity that we have to become aware of both self and subjective time.

will refer to the pastness feature of episodic memory as conceived by affectivalists as *the feeling of pastness*.

The notion of a feeling of pastness has received a significant number of affectivalist analyses both in older and more recent psychology (James, 1890, p. 570 “sui generis feeling of pastness”; Klein, 2015a, p. 5 “subjective feeling of pastness”), and in older and more recent philosophy (Russell, 1921, p. 163 “feelings giving a sense of pastness”; Matthen, 2010, p. 9 “feeling of pastness”; Michaelian, 2016, p. 192 “feeling of pastness”). But the importance of this affectivalist approach notwithstanding, which specific account of the feeling of pastness to endorse is still a matter of debate. In what follows, we will be concerned with an affectivalist approach that is popular among philosophers, according to which the feeling of pastness can be accounted for by what episodic memory represents, viz. by its content. *Intentionalism*, as the view is sometimes called, has been recently defended by Fernández (2019, chap. 4) and we will argue that it fails as an account of the feeling of pastness.<sup>4</sup>

But before we turn to this discussion, we should first distinguish between what we call the ‘imagistic phenomenology’ and the ‘feeling phenomenology’ of episodic memory.<sup>5</sup> Imagistic phenomenology refers to the phenomenal features of episodic memory associated with its imagistic content—e.g., the shapes, colours, and spatial layout of the elements of the mental image of an event. Feeling phenomenology, in contrast, refers to the affective features associated with a certain imagistic content. Consider an episodic memory of your tenth birthday party. Arguably, different feelings contribute to its proprietary phenomenology: *the feeling of ownership*, viz. the feeling that you are the subject of the past experiential episode represented by the memory (e.g., you feel that you are the person who blew out the candles); *the feeling of causal connectedness to the past*, viz. the feeling that your current memory has as its causal origin the very experiential episode represented by the memory (e.g., you feel that your current memory comes from the experiential episode of blowing out the candles); or *the feeling of pastness*, viz. the feeling that the experiential episode represented by the memory is located in your personal past (e.g., you feel that the experiential episode of the birthday party is located somewhere on the path of your past existence). According to intentionalism understood more generally (e.g., Dretske, 1995; Lycan, 1996; Byrne, 2001; Tye, 1995, 2002), the phenomenal features of a mental state are nothing but intentional or representational properties of this mental state. Applied to memory, the suggestion is that the phenomenal features of a memory are nothing but intentional or representational properties of this memory. Thus, on a standard intentionalist take on memory, such as the one developed by Fernández

<sup>4</sup> On another affectivalist view, the feeling of pastness is explained in terms of the proprietary phenomenology of the *mental mode* of episodic remembering, thus as a cognitive phenomenological feature (Matthen, 2010; Recanati, 2007, p. 141–142; Brown & Mandik, 2012). But due to the underspecification of that proposal and the difficulties it raises (Dokic, 2014, p. 6–8), we will leave it aside. Note that despite considering as legitimate the notion of a feeling of pastness as mode-dependent (see Sect. 5.1), our own preferred metacognitive account does not appeal to the notion of a proprietary phenomenology intrinsic to the mental mode to explain such a feeling (see Sect. 5.2). Thus, it is distinct from any account phrased in terms of cognitive phenomenology.

<sup>5</sup> For a similar distinction about the phenomenology of perception, see Dokic & Martin (2015) and Chasid & Weksler (2020).

(2019), the nature of both imagistic and feeling phenomenology can be accounted for in terms of the intentional or representational properties of memory.<sup>6</sup>

In criticizing intentionalism, however, we will not be concerned with imagistic phenomenology. We will thus remain neutral on the question of whether imagistic phenomenology can be adequately explained in terms of the intentional or representational properties of memory. Rather, we will argue that, insofar as feeling phenomenology is concerned, there are strong reasons to resist an intentionalist approach. As a few authors have recently pointed out, a metacognitive account should be preferred, whereby the phenomenology of episodic memory more generally, and the feeling of pastness more specifically, are viewed not as being dependent on the content of episodic memory, but rather on the operations of subpersonal and content-insensitive processes that detect and interpret the procedural features of mental states (see Dokic, 2014; Perrin, 2018; Perrin et al., 2020 for philosophy; see Whittlesea, 1997 and Leboe-McGowan & Whittlesea, 2013 for psychology). In the next two sections, we criticize intentionalism as developed by Fernández (2019) and intentionalism more generally. This will pave the way for a vindication of our own metacognitive proposal in Sect. 5.

### 3 Fernández' notion of the feeling of pastness as an experience of content

In this section, we discuss Fernández' own intentionalist account of the feeling of pastness, according to which it consists in an 'experience of the content' of memory (3.1). We argue that the notion of an 'experience of content' is ambiguous and allows for two different readings. On a first reading, 'experience' is understood as a 'thick' notion, and hence results in a higher-order account of the feeling of pastness (3.2.1). On a second reading, 'experience' is understood as a 'thin' notion, and hence results in a first-order account of the feeling of pastness (3.2.2). We show that whichever option is favoured, the notion turns out to be unsatisfactory.

#### 3.1 Fernández' intentionalist account

A key thesis defended by Fernández in his book (2019) is that the content of episodic memory is self-referential. According to the self-referential view—SR view, for short—episodic memory represents itself as being caused by a perceptual experience had by the subject. The SR view makes two important claims about the nature of the content of memory. First, for a mental state to count as a memory, it needs to represent a veridical perceptual experience.<sup>7</sup> Second, it must represent the perceptual

<sup>6</sup> Intentionalism belongs in the family of views on which phenomenal features cannot be 'separated' from representational properties—hence the label of 'anti-separatism' (for an overview of the separatism vs. anti-separatism debate, see Horgan & Tierson, 2002; Chalmers, 2006; Siewert, 2017; for the endorsement of anti-separatism by Fernández, see 2018, p. 9). As we sketch out the metacognitive alternative in Sect. 5, we will argue for a separatist approach.

<sup>7</sup> By "veridical" Fernández means that the perceptual experience that is a part of the content of memory must have represented the world in the way it was back when it took place.

experience in question as one that the subject herself had in the past and that causes one's current memory—hence the suggestion that memory is characterized by self-referential contents. Thus, for instance, when Sally forms a mental image of the Eiffel Tower in her mind, for that mental state to count as a memory, it must be the case (1) that it represents a veridical perceptual experience of the Eiffel Tower and (2) that the perceptual experience in question was had by Sally herself and her current mental state causally originates in this experience.

The overall motivation for endorsing the SR view is that it captures important intuitions about the accuracy conditions of memory. It allows us to make sense of the idea that memory is in part about the outside world—viz. events—and in part about our own minds—viz. perceptual experiences. Given that it is not our goal to evaluate Fernández' account of the intentionality of episodic memory, we will simply take it for granted from now on.<sup>8</sup> What should be retained from this discussion is the idea that memory possesses causal self-referential contents.

With the SR view in place, we can now turn to the question of how it grounds the phenomenology of episodic remembering. Fernández starts by identifying two feelings as being constitutive of this phenomenology: a 'feeling of ownership' and a 'feeling of pastness'.<sup>9</sup> Regarding the latter, Fernández proceeds in two steps. The first step consists in offering a negative argument to the effect that, despite the term 'feeling of pastness' being used to describe the phenomenology of memory, episodic memory does not involve the experience of a temporal property. The second step consists in offering a positive argument to show why, despite not involving the experience of a temporal property, episodic memory still involves an experience of time, or a 'feeling of pastness'. For our purposes, the positive argument will be central, so we will focus on it in what follows.

Remember that, according to the SR view, a memory represents itself as being caused by a perceptual experience had by the subject. Thus, as Fernández puts it,

[SR] construes the feeling of pastness as the experience of [...] a property of the memory itself. This is the property of having been caused by a perception of the fact that we claim to remember. In other words, according to [SR], the feeling of pastness is not an experience of time, but *an experience of causal origin*. (p. 108, our emphasis)

Accordingly, understanding why the experience of causal origin in memory gives rise to a feeling of pastness requires understanding how causation works. He continues,

Arguably, it is nomologically necessary that causes precede their effects. In other words, laws of nature guarantee that the time at which a cause happens is earlier than the time at which its effect happens. If this is correct, then having played a certain role in the causal history of the memory that one is having goes

<sup>8</sup> Fernández offers a detailed discussion as to why the SR view provides a better account of the content of memory in comparison to competing approaches (see 2019, chapter 3).

<sup>9</sup> Due to our focus on temporal phenomenology (see Sect. 2), we will not discuss the feeling of ownership here.

hand in hand with having a certain position in time, namely, being in the past. This explains, the [SR] advocate may argue, our inclination to identify the feeling of pastness with the experience of being in the past. (pp. 108–109)

Thus, memory involves a feeling of pastness because (1) it represents itself as being caused by a perceptual experience, (2) it is nomologically necessary that causes precede their effects, and (3) as she is remembering, the subject experiences the causal component of the content of her memory. It is, therefore, because of (2) that her experience of (1) results in a temporal experience.

Let us note at this stage that it is not at all obvious why specifying the nature of the content of memory should give us any insight into its phenomenology. As we discuss in more detail below, although Fernández does not say much about the nature of the relationship between content and phenomenology, he is clearly committed to the idea that phenomenology depends on content (2019, pp. 29–31), which he spells out in terms of an experience of content (2019, p. 108). The SR view, in other words, goes hand in hand with an intentionalist approach to the phenomenology of memory. This assumption, as Fernández himself puts it (2019, p. 29), is required to make sense of the SR view in the context of the phenomenology of memory.

In the remainder of this section, we discuss Fernández's own specific account of the feeling of pastness in terms of an experience of content. As noted before, we focus on his view not due to exegetical interest, but rather because he is the only author to have explicitly proposed and developed an intentionalist account. In Sect. 4, we expand the scope of our discussion to consider intentionalism more broadly.

## 3.2 Rejecting the notion of an experience of content

We will argue now that Fernández' intentionalist account grounded on the SR view fails as an account of the temporal phenomenology of memory.<sup>10</sup> We distinguish between two possible readings—labelled 'thick' and 'thin'—of Fernández' notion of an 'experience of content' and show that none of them are satisfactory.

### 3.2.1 The 'thick' notion of an experience of content

The idea that the feeling of pastness can be accounted for by the notion of an 'experience of content' is problematic for a number of reasons. In particular, this notion is compatible with both a higher-order and a first-order account of the phenomenology of remembering, and it is not obvious which one is favoured by Fernández. The higher-order option<sup>11</sup> is strongly suggested by his talk of a feeling and by the fact that

<sup>10</sup> A potential concern is that Fernández does not provide a mechanistic account properly speaking, contrary to what we will do in Sect. 5. But his account implies that content should play a central role in such an account. Moreover, the mechanistic account we propose implies that the feeling of pastness is not an experience of the content of a memory. There is no risk, therefore, that our accounts talk past each other.

<sup>11</sup> As a reviewer rightly points out, one alternative here is to interpret Fernández' "thick" notion of experience in terms of a higher-order perception, as opposed to a higher-order thought (see Gennaro, 2004). While we think that this is indeed a possibility, there is little evidence that Fernández actually holds a view along these lines. In other words, Fernández does not say anything to indicate that his account requires



this feeling has a specific (temporal) content distinct from the (non-temporal causal) content of episodic memory.<sup>12</sup> On this view, phenomenology would be explained in terms of a second mental state posited in addition to the first-order causal self-referential memory. But the first-order option too finds support in Fernández' analysis. The SR view is a reflexive view very similar to the metarepresentationalist account, according to which auto-noetic phenomenology—and hence temporal phenomenology—is a reflexive comment built into the content of the memory. Moreover, Fernández' approach is very similar to strong intentionalist accounts of phenomenology, according to which the latter is nothing over and above the content of a mental state. Given this ambiguity, it is unclear whether we should interpret the notion of an 'experience of content' as a 'thick' notion, where 'experience' is interpreted as a relation between two mental states, or as a 'thin' notion, where 'experience' is just reference to an aspect of the content of memory. Beyond the vague suggestion that the phenomenology of memory depends on its content, it is hard to pin down precisely the nature of Fernández' intentionalism.

Let us, however, explore each of these alternatives in more detail as potential elaborations of intentionalism. Consider the 'thick' interpretation. What could 'experience' mean in this context? We see two possibilities here. The first is to define 'experience' as an *introspective* state, but we think this interpretation faces problems. On the one hand, if the object of the subject's introspective state is the causal component of the content of memory, then the feeling experienced by the subject as she introspects on this component should concern causality in addition to pastness. Yet, Fernández' account of the feeling of pastness leaves no room for consciousness of the causal component as such—i.e., no room for there to be a feeling of causality—but only for the temporal component.<sup>13</sup> On the other hand, this definition does not explain why introspecting on the causal component should trigger a feeling rather than, say, a belief about the temporal location of the remembered fact. In other words, introspection cannot explain the affective dimension of the feeling of pastness.

This leads us to the second possibility. That is, we might define 'experience' as a state of *understanding*. Fernández' analysis of intentional content in terms of propositional content suggests a reading along these lines. That is, Fernández endorses an account of mnemonic content based on possible-world semantics, on which the truth-conditional content of a memory is a proposition defined as a set of possible worlds.<sup>14</sup>

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postulating the existence of an inner sensory mechanism—i.e., an "inner sense"—that is responsible for making episodic memories conscious states. Moreover, given the various problems faced by higher-order perception theories (see Carruthers & Gennaro, 2020), we believe that a more likely interpretation of Fernández' view consists in appealing to higher-order thoughts.

<sup>12</sup> Note that we endorse the minimal representationalist notion of the content of a feeling on which feelings can carry information, and hence can have content, without taking any stand about the format of this information, in particular as to whether this format is propositional or not.

<sup>13</sup> For a more detailed discussion of this idea, see our discussion of the identity view of the relationship between content and phenomenology in Sect. 3.2.2.

<sup>14</sup> More specifically, according to Fernández, the propositional content of an episodic memory  $M$  of a subject  $S$  about an event  $q$  consists in the set of possible worlds  $W$  such that in  $W$ ,  $M$  is caused by  $S$  having perceived  $q$  through a perception  $P$  (2019, p. 79). While a possible-world-based account is just one among many options to make sense of the nature of propositions, for our purposes here we will simply grant Fernández that the content of episodic memory can be characterized in this way.

Enjoying a mnemonic state would thus involve grasping such propositional content; in other words, it would involve entertaining a relation of understanding to the latter. Moreover, propositional contents are formed by certain components that are shared by all the worlds that individuate the contents in question, and those components might conceivably be objects of experience. Now, some neo-Russellian researchers have maintained that understanding certain propositions consists in part in entertaining an experiential relation of acquaintance to some of their components. According to them, singular propositions or thoughts cannot be understood without such a relation to the singular entities that are parts of propositions or thoughts (Jeshion, 2010). Building on this literature, we might interpret the idea that memory involves the experience of the causal component of its content along these lines—i.e., as a relation of understanding to this component that takes the form of an acquaintance relation. While this elaboration avoids speaking of introspection, and therefore is not subject to the criticisms raised above, we think that it is problematic for two different reasons.

For one thing, Fernández' overall account does not make any space for the idea of a direct experiential relation through time to entities located in the past. For another thing, while the idea of an acquaintance relation to a concrete entity is relatively plausible, the idea of such a relation to an abstract entity—such as a causal relation—is obscure at best. Therefore, the second reading, which appeals to a relation of understanding, fails to provide us with a satisfactory account of the notion of 'experience'. As a result, the 'thick' interpretation of the idea that the feeling of pastness results from an 'experience of content' is unlikely to be successful.

### 3.2.2 The 'thin' notion of an experience of content

Since the thick reading of the notion of an 'experience of content' is problematic, we proceed to consider and discuss a 'thin' reading. According to this reading, the notion of an 'experience of content' should be interpreted in terms of a relationship of *identity* between content and phenomenology. On this proposal, the feeling phenomenology of memory is nothing over and above its intentional content. On the particular case of the feeling of pastness, the suggestion would be that it is nothing over and above the representation of the causal origin of memory, with the talk of 'experience' merely specifying the conscious or phenomenal feature of the representation. By identifying the feeling of pastness with the representation of the causal origin of memory, we can avoid the worries pertaining to the requirement for some form of higher-order state to account for the experience of remembering. Again, the experience, or the phenomenology, of remembering is just its representational content. Let us call this the *identity view* of the relationship between content and phenomenology.

Despite being *prima facie* plausible, the identity view is unlikely to help Fernández. This is because the SR view is incompatible with the idea that the feeling of pastness is identical with the representation of the causal origin of memory. As Fernández himself acknowledges, despite memory representing its causal origin, subjects experience a feeling of pastness, as opposed to a feeling of causal origin. But then, a difficulty similar to the one faced by the introspective reading discussed above arises. If phenomenology is identical to content in the way predicted by the identity view, one would rather expect subjects to experience a feeling of causal origin, and not a feel-

ing of pastness. This violates the idea that, for a relationship of identity to obtain, the entities that are being identified must possess the same set of properties.

One may point out in response that Fernández seems to be aware of this problem, for as discussed in the previous section, his view is that (3) memory involves a feeling of pastness not only due to (1) memory representing itself as being caused by a perceptual experience, but also due to (2) it being nomologically necessary that causes precede their effects. As he notes, “according to [SR], the feeling of pastness is not an experience of time, but an experience of causal origin” (2019, p. 108). What confers the status of a ‘feeling of pastness’ to the ‘experience of causal origin’ is therefore the conjunction of (1) and (2). Thus, once we specify what it means to represent a causal relation, we can see how the representation of the causal origin of memory can be identical to the feeling of pastness.

The problem with this suggestion is that it assumes that (1) and (2) are sufficient to give us (3) the feeling of pastness. However, it is not true that the representation of a mental state, *A*, as causing another mental state, *B*, plus the understanding that it is nomologically necessary that causes precede their effects, implies the representation that something is past. Suppose, for instance, that you have a perceptual experience *p* of a bird singing outside and you form a belief  $b_1$  that there is a bird singing outside. Furthermore, suppose that you form another belief  $b_2$  that  $b_1$  is caused by *p*. It does not follow from this that *p*—or what *p* is about—is represented as being past. More importantly, it does not follow from this that there is anything like a feeling of pastness accompanying your belief. So, the mere representation of a causal relation between two mental states cannot give us a feeling of pastness.

To this, one could respond by pointing out that the representation of a causal origin in memory, in contrast to its representation in belief, is self-referential. Memory represents itself as being caused by a perceptual experience. This is why, it could be argued, there is no feeling of pastness accompanying beliefs. But proponents of the SR view now owe us an account of how a mental state representing itself as being caused by another mental state gives rise to a feeling of pastness. It is not clear what the motivation for endorsing this claim is, however. A different strategy to resist the objection would be to interpret the SR view as an eliminativist view about the feeling of pastness. The idea would be that there is not, strictly speaking, a feeling of pastness, but just an experience of causal origin that, due to our understanding of causation and time, we ordinarily describe as being an experience of time. Fernández seems to hint at this view toward the end of his discussion of the feeling of pastness. For instance, he says that the SR view “can shed some light on the reasons why episodic memories enjoy the phenomenological feature that we have been calling the ‘feeling of pastness’. It can do it by re-constructing what that feature of memories is really a feeling of” (2019, p. 109, our emphasis).

While this would avoid the problem discussed here, it is hard to see how this view can be reconciled with Fernández’ overall discussion of the feeling of pastness. Chapter 4 of his book, which is entirely dedicated to this discussion, systematically relies on the idea that the phenomenology of memory is correctly characterized by a ‘feeling of pastness’. With the exception of the passage above, there is no other clear indication that the SR view is advocating an eliminativist view. A more substantial problem is that, if this eliminativist interpretation is correct, then there is an important

sense in which the SR view fails as an account of the phenomenology of memory. If we take it for granted that one characteristic feature of the phenomenology of episodic memory is a feeling of pastness, which is supported by phenomenological reports, then the fact that this feature cannot be accounted for in terms of what episodic memory represents suggests that the SR view ultimately fails as an intentionalist account.

To sum up, in this section we showed that Fernández (2019) fails to offer an account of how the experience of the causal component of mnemonic content results in the feeling of pastness. In the next section, we will rebut the more general intentionalist claim that the feeling of pastness depends on mnemonic content.

## 4 Rejecting the dependence of phenomenology on content

In Sect. 3.2., we argued that appealing to a relation of *experience* to the content of memory to explain its phenomenology is unlikely to be successful. In this section, we raise a problem to Fernández' broader intentionalist claim that the feeling of pastness *depends on content*. In particular, we argue that appealing to the causal component of content is neither sufficient (4.1) nor necessary (4.2) to account for the occurrence of the feeling of pastness. Exploring these points in more detail will allow us to identify some key constraints for any satisfying account of the feeling of pastness, with these constraints being presented and discussed in a systematic way in Sect. 5. After showing in this section that the intentionalist view fails to meet these constraints, in Sect. 5 we will argue that the metacognitive account succeeds in doing so.

### 4.1 The no-sufficiency objection

Beyond the specific notion of an experience of content, Fernández is committed to a more general view about the relationship between content and phenomenology in memory, namely, one that postulates a relation of dependence between the two. On this view, being conscious of the content of an episodic memory<sup>15</sup> is both sufficient and necessary for the feeling of pastness to occur. More specifically, the feeling of pastness is said to supervene on the conscious representation of the causal origin of memory. Let us call this the *supervenience view*. This view has two important advantages. First, it avoids the problem discussed above concerning the identification of the feeling of pastness with the experience of causal origin. Substituting the notion of 'experience' with the notion of 'dependence' makes the claim that the phenomenology of pastness is grounded on the causal self-referential content more plausible, for depending on something for a certain state of consciousness—namely, the feeling of pastness, as far as the present paper is concerned—does not imply that what it depends on must be part of the content of that state. Second, this view appears to be more in line with Fernández's own approach after all. While he is clear that his proposal is intentionalist in nature, as we noted before, he does not say much about

<sup>15</sup> We emphasize that, on Fernández' analysis, the phenomenology of pastness is supposed to supervene on content *as conscious*, for content is a component of an actual episode of remembering.

what the relationship between phenomenology and content is supposed to be. But this is, according to him, precisely what makes this approach attractive. It allows one to secure, on the one hand, the claim that looking at the content of episodic memory is informative for understanding its phenomenology, while, on the other hand, making the view compatible with different accounts of how the relationship of dependence between the two obtains—whether it is by means of a relation of causation, instantiation, or something else (2019, pp. 33–5). Given that a relationship of supervenience seems to achieve just that, it thus seems plausible to interpret Fernández as endorsing it. But even if we interpret the SR view along these lines and consider intentionalism broadly construed, we believe that it faces two objections—the objection from insufficiency and the objection from contingency—that ultimately make it unable to provide a satisfactory account of the feeling of pastness.

Our first objection is that consciousness of the content of a memory is *not sufficient* to secure the feeling that what is represented by the memory is past. Specifically, we provide two arguments in support of this claim. The first argument is that the feeling of pastness appears to come in degrees, whereas the content of a memory, for instance the representation of causal origin, exhibits nothing corresponding; thus, an account grounded on the latter is phenomenologically inadequate. That is to say, the way episodic memories feel past is subject to variations, in the sense that they are experienced as involving a more or less intense feeling of pastness. For example, suppose again that you are remembering your tenth birthday party on a given occasion. The feeling of pastness accompanying your memory can vary in degrees, for whatever reason, being more intense in some moments and much weaker in others. Note that this is no surprise, since most of our affective states (pain, sadness, and so on) exhibit the same feature of coming in degrees.<sup>16</sup> What is important here is that these variations in intensity usually go hand in hand with memories having one and the same content. That is, despite the experience of pastness differing in degrees at different moments, the memories you have in those moments represent the same thing: i.e., your tenth birthday party. Now, if the feeling of pastness were dependent on the content of the memory it accompanies, we should expect variations in degree to be grounded on corresponding differences in content. But since this is not the case, the notion of such a dependence appears problematic.

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<sup>16</sup> As a reviewer pointed out, one could doubt whether a feeling of pastness can vary in intensity just as feelings of sadness or pain do. Here is an argument to say it can. Suppose that an image of a birthday party comes to your mind and that you do not have any other means to decide whether this is a mnemonic or an imaginative image than the phenomenology of it—this is an instance of the process problem we evoke below. Arguably, the feeling of pastness associated with the image is the phenomenological feature on which you will draw to make your decision. You could hardly draw on the feature of ownership, for instance, since episodic remembering and episodic imagination can involve this feature alike. If this is right, then a feeling of pastness varying in intensity predicts that mnemonicity should be a more or less salient feature of the image. Absent any feeling of pastness, the image should not appear as mnemonic at all and you should make your decision accordingly. If there is a dim feeling of pastness, the image should appear as possibly mnemonic, while if there is an intense feeling of pastness, the image should appear as definitely mnemonic. Now, the possibility of a more or less salient mnemonicity is one of the striking features of our cognitive life. Consequently, we have a good reason to think that the feeling of pastness can vary in intensity.

One natural way to deal with this problem would be to say that it is the varying temporal distance between the memory and the remembered event that grounds the variations in intensity of the feeling of pastness. For example, your tenth birthday party is more temporally distant from you than your thirtieth birthday party. Consequently, the former feels more past than the latter as you remember them. In line with Fernández' causal SR view, one could say, for instance, that it is a certain feature of the causal relation represented by the content, namely: the varying temporal distance between the current memory and its past cause, that grounds the variations we have noticed above in the feeling of pastness. Thus, there would be, after all, something in the content that can ground the variations of degrees of the feeling of pastness. This reply falls short, however, because it conflates degrees of intensity with variations of temporal distance. For one and the same content—i.e., for one and the same temporal distance between a memory and its cause as in the above example of the memory of your tenth birthday party—feelings of pastness with different degrees of intensity can occur.<sup>17</sup> Therefore, variations of intensity cannot be grounded on variations of temporal distance in the content.

Our second argument is that appealing to a reflexive causal relation built into the content of a mental state (as Fernández does, 2019, p. 95, 107) *underdetermines* the nature of the very mental state involved in the representation of this relation. To motivate this point, consider the *process problem* as discussed by Michaelian (2016, ch. 9), i.e., the problem of explaining how subjects succeed in identifying the type of mental state they are enjoying—e.g., whether one is remembering or imagining.<sup>18</sup> Though not the only means by which subjects solve the process problem, one strategy often employed by them is to appeal to phenomenology. In many cases, one knows that one is remembering rather than, e.g., imagining, simply because of what it is like to enjoy the former mental state and how it differs from enjoying the latter. As Mahr and Csibra note, auto-noetic phenomenology serves as a distinctive mark of the first-handedness—i.e., the fact that the events represented originate in past experience—of certain event representations. This is what, according to them, allows subjects to distinguish remembering from imagining (2018, 1.1.2, 3; see also Debus, 2010). Therefore, any satisfying account of the phenomenology of episodic remembering must succeed in accounting for this function of phenomenology. Now, we contend that Fernández' account is unable to provide a satisfactory solution to the process problem.

Our argument here proceeds in two steps. First, remember that, on Fernández' analysis, the content of a memory is constituted by the memory state itself, a past objective fact, a past experience of the latter fact, and a causal relation between the current memory state and the past experience. Moreover, as specified above, if phe-

<sup>17</sup> Echoing the situation considered in footnote 16, for example, when the image comes to your mind with a given content, it can be accompanied by a more or less intense feeling of pastness and it can appear as mnemonic in a more or less salient way. Since the content is constant *ex hypothesi*, and thus does not involve any information about temporal distance, the feeling of pastness must be distinguished from the latter. This renders it difficult to hold an intentionalist account *à la* Fernández. Thanks to a reviewer for bringing to our attention the importance of the distance-intensity distinction for our argument.

<sup>18</sup> The process problem is a version of the memory marker issue, which traces back to classical empiricism. For an overview of the relevant historical discussions, see Bernecker (2008, 6.1).

nomenology is to help us in dealing with the process problem, it must be able to make us conscious of the fact that a mental state we enjoy in a given moment is a memory state. When it comes to the SR view, then, the relevant feature that allows us to do so is the feeling of pastness.<sup>19</sup> Now—and this is the second step of the argument—on the supervenience view, for a feeling of pastness to occur, the subject must be conscious of the content of her current mental state as including (among other things) a memory state, namely the current state that is causally related to an experiential state. But this gets things backwards, for instead of being the explanation of why we identify a current mental state as a memory, the feeling of pastness is rather explained by the fact that we identify a current mental state as a memory. So, if the feeling of pastness is the reason why we solve the process problem, the SR view leaves us with a circular account, for the feeling of pastness can only occur if memory is first identified as such.

In summary, an account of the pastness phenomenology in terms of the consciousness of the causal component of the content of a memory is not sufficient to secure the occurrence of a feeling of pastness. As we saw, the SR view has no way of explaining how one of the relata of the causal relation is a memory state without ending up with a circular account. Thus, the facts that phenomenology depends on content and that memory has self-referential contents are not sufficient to give us an account of the feeling of pastness. In addition, as we will argue now, they are also not necessary for such an account.

## 4.2 The no-necessity objection

Our second objection is that even if a dependence relation between phenomenology and the causal component of content were sufficient to account for the feeling of pastness, it would nonetheless not be necessary. We provide two empirically-grounded arguments in support of our claim. First, we argue that the occurrence of a feeling of pastness is dependent on the procedural features of memory mental state, as opposed to its semantic features. Second, we argue that these procedural features are opaque to their own causal origin.

Let us expand on these two points. When a mental state is produced, it has at least two kinds of features. On the one hand, it has *semantic* features, which are the truth-conditions of the mental state, or the way it represents the world as being. In brief, this refers to its intentional content. Thus, for instance, when one remembers perceiving an apple as having a certain color and shape and as being located in a certain location, these elements together represent the world as having been a certain way. On the other hand, a mental state also has *procedural*, non-semantic features, which refer to features of the processes involved in producing the mental state in question. To illus-

<sup>19</sup> One might object at this stage that we unduly restrict Fernández' account of phenomenology to the feeling of pastness, while it requires the whole set of phenomenological features, viz. the feelings of pastness and of ownership as well as the awareness of previous experience, for the process problem to be solved. In response, our specific point is that on Fernández' analysis the feeling of pastness is necessary for phenomenology to solve the process problem, yet Fernández' analysis is unable to account for how consciousness of content can ground this feeling. Thus, one of the essential components of phenomenology is left unaccounted. As a result, Fernández' analysis fails to solve the process problem.

trate, consider the process of mentally constructing a scene that involves the experience of perceiving a red apple. There are two ways in which one may do so. There is a smooth and easy way, which requires relatively little cognitive effort, and there is more cognitively effortful way, these two different ways potentially characterizing the construction of one and the same imagistic content. Conversely, one can construct a scene that involves the experience of perceiving a red apple, on the one hand, and a scene that involves the experience of perceiving a green bird, on the other hand, with these scenes stemming from different processes that exhibit the same procedural feature of fluency. Therefore, two mental states can share their content while differing in their procedural features, as well as they can share their procedural features while differing in their contents.

Now, and so is our first argument, contrary to what Fernández holds, a robust body of empirical data suggests that the feeling of pastness in memory depends on the procedural, and not the semantic features, of first-order memories. So, having a memory with a causal self-reflective content is not necessary for there to be a feeling of pastness.<sup>20</sup> In a review of the empirical literature, Whittlesea and Leboe (2000) draw up a list of three heuristics on which subjects rely to decide whether to attribute their current mental state to one of their past experiences or not, and accordingly, whether they are enjoying a state of remembering or not. These heuristics are fluency, generation, and resemblance. Fluency designates the relative ease with which cognitive processing is carried out; generation designates the relative success in mentally generating contextual specifics of a previous encounter with an item; and resemblance designates the relative consistency of a particular item with the remembered content to which it belongs—e.g., a word with the whole list of words, or a specific event with the whole story. A striking feature shared by these heuristics is their procedural character.<sup>21</sup>

While it seems clear that fluency and generation are procedural in nature, one could point out, however, that the resemblance heuristic is related to content, since it involves identifying the similarity of some features of an item with the rest of the remembered content. Yet, for one thing, these are features—e.g., the thematic gist of a list of words or the narrative gist of a story—that are obviously unrelated to a causally reflexive content identifying the source of a memory, and for another, what matters in resemblance heuristics is more the relative ease with which an item comes to mind due to its resemblance with the remembered content to which it belongs, rather than the semantic features of the item. As Whittlesea and Leboe put it: “The resemblance and generation heuristics are both based on *the ease of producing or processing* contextual elements” (2000, p. 86, emphasis added).

A proponent of the content-based account could object that in spite of their procedural nature, it is still conceivable that the heuristics on which the feeling of pastness depends convey information about the source of the memory whose processing

<sup>20</sup> As we will see, this dependence relation is often defined in causal terms. As far as our discussion of Fernández is concerned, positing a weaker relation of dependence—implied by a causal relation—between the feeling of pastness and the occurrence of procedural features will suffice.

<sup>21</sup> “[T]he fluency heuristic is based on the ease or efficiency of processing a stimulus that is physically present” (Whittlesea and Leboe, 2000, p. 85).



they characterize. For instance, the cognitive system could be so wired that fluency would be intrinsically associated to a past personal encounter with what the processed memory represents as its cause. Thus, despite being procedural, it would still convey information about the causal origin of memory.

However, this reply will not do, for—and this is our second argument—fluency as well as other procedural heuristics are informationally opaque to their source. In a series of experiments, Whittlesea and colleagues have shown that one and the same procedural feature of the processing of a mental state can convey different kinds of information. For instance, in an experiment performed by Whittlesea (1993), subjects were presented with lists of words during the study phase. During the test phase, they were asked to read aloud some sentence stems, e.g., “She saved her money and bought a ...” before a completing word (e.g., lamp) was presented. Unbeknownst to the subjects, some sentence stems were predictive of the presented words. For instance, “The stormy seas tossed the ...” was predictive of “boat”. This manipulation was intended to increase the fluency of processing of the completing word. Questions were then asked about different features of the processed words, with one about the pleasantness or dullness of the words, and one about their presence or absence in the study list. As it turned out, fluency increased through prior encounter and predictivity increased the rate of “pleasant” as well as “old” responses. Thus, detected fluency, irrespective of its actual source, can give rise to a feeling of pleasantness or a feeling of pastness depending on the cognitive task carried out by the subject. In and by itself, fluency is thus informationally opaque to its source.<sup>22</sup> The reply under consideration is, therefore, unlikely to succeed.

We thus conclude that Fernández’ intentionalist contention that the phenomenology of memory depends on its content is not only insufficient, but also not necessary, to account for the feeling of pastness, for the latter is tied to the procedural or non-semantic features of memory.

## 5 The metacognitive alternative

Where does our critical analysis of the intentionalist view leave us? We will now argue that the critical points discussed above pave the way for a metacognitive account. We will not, however, fully elaborate this account here since we have done so recently elsewhere (Perrin et al., 2020, see also Dokic, 2014, for an account along similar lines). Given that our main goal is to adjudicate between the intentionalist and the metacognitive views, we will restrict ourselves to singling out some constraints that we think any attempt to account for the temporal phenomenology of episodic remembering must respect.<sup>23</sup> The previous sections have already shown, although in an indirect way, how intentionalism fails to meet these constraints. In this section, we

<sup>22</sup> Other cognitive tasks different from the evaluation of pleasantness or pastness of an item can trigger yet further interpretations of fluency, e.g. the correctness of conceptual categorization (see Whittlesea and Leboe, 2000). See also Schwarz (2004) and Oppenheimer (2008) for reviews.

<sup>23</sup> Note that our claim is not that these are the *only* constraints to accommodate. More modestly, given the goal of our paper, we say instead that they are important enough for an account to be preferred over another if it succeeds in accommodating them.

articulate these constraints in a more explicit manner and show how the metacognitive view succeeds in accommodating them.

### 5.1 Three meta-theoretical constraints

As signaled by the non-consensual and relatively sparse character of the philosophical literature on the topic, we are still in need of meta-theoretical guidelines for any satisfactory account of the temporal phenomenology of episodic remembering.<sup>24</sup> From our critical discussion in Sects. 3 and 4, three important constraints for any satisfactory account of the feeling of pastness arise. With a view both to starting bridging the mentioned gap and advocating for the metacognitive account, we spell them out more systematically in what follows.

First, and most importantly, such an account should accommodate the fact that the feeling of pastness does not depend on the content of memory. As the empirical data discussed above suggests, there is a strong correlation between the processing feature of fluency and the feeling of pastness in remembering (Ansons & Leboe, 2011; Kurilla & Westerman, 2011, 2008; Whittlesea, 1993; Jacoby & Dallas, 1981). In recognition tests, for instance, if the processing of an item exhibits a relatively high fluency, subjects will become conscious of the item as having been encountered in the past and claim that they remember it (“old”), whereas if the processing of an item exhibits a relatively low fluency, subjects will become conscious of it as having not been encountered in the past (“new”). Specifically, if the perception of an item triggers the recollection of contextual details about a past experience of the item, and if this recollection has some procedural qualities like fluency, then subjects usually undergo the experience of remembering that previous experience of the item. Procedural qualities of the reconstructive processes engaged at retrieval are thus instrumental in triggering the feeling of pastness. If this is correct, then fluency—or any other procedural feature that could play the same role, like resemblance and generation—seems to be sufficient to trigger a feeling of pastness. A straightforward implication of this is that the feeling of pastness is independent from the representational content brought about by the processing of the item. In particular, then, (*pace* Fernández) no causal content is necessary for such a feeling to occur. Moreover, due to the conceptual arguments given above (see Sect. 4.1), it is not sufficient either. Overall, therefore, any appropriate account should have it that the feeling of pastness is insensitive to content, but sensitive to procedural features.

One could object that an account grounded on processing fluency is all too simple. Fluency can ground different types of reference to the past, either in the form of a feeling of familiarity or in the form of a feeling of pastness. Within the Remember-Know paradigm (Tulving, 1985; Gardiner & Ramponi, 1998; Williams & Moulin, 2013), for instance, subjects are offered the possibility of choosing the “old” answer either because they merely “know” that they have seen the item, or because they “remember” that they have seen the item. While both feelings are possibly tied to fluency, they differ in important senses. Indeed, the feeling of pastness typically accompanies the recollection of specific episodes from the past that are mentally relived,

<sup>24</sup> Thanks to a reviewer for bringing to our attention the importance of this aspect of our argument.

while the feeling of familiarity typically accompanies the recognition of a present perceived item with no reference to a specific episode where the item was previously encountered. But if that is the case, then why does fluency sometimes give rise to a feeling of pastness and sometimes to a feeling of familiarity? This “double life” of fluency, one might argue, suggests that it is not, after all, sufficient for the feeling of pastness, for some other element seems necessary to explain how this feeling arises. More to the point, it might be argued that this additional element is a representational content.

In response, we note two things. First, we grant the point that a full argument to the effect that fluency is sufficient for the feeling of pastness requires disentangling the relationship between the feeling of pastness and the feeling of familiarity.<sup>25</sup> As the second constraint will make explicit, a good candidate for the additional disentangling element is the context in which fluency occurs and is interpreted. Our final refined claim will thus be that fluency jointly with its context is sufficient for the feeling of pastness to occur, with the anti-intentionalist implication still holding accordingly. Second, it does not follow from the objection that a representational content is the additional necessary element. As our discussion above shows, there are strong reasons for thinking that this is not the case. Thus, since intentionalism requires that a representational content is both necessary and sufficient for the feeling of pastness, this objection falls short of making a case for the view. In short, while the objection asks for some refinement of our independence claim, it does not lend any support to intentionalism.

As a second constraint, any satisfactory account should make sense of the fact that the content of the feeling under consideration, viz. pastness, is fixed by the context in which fluency occurs. As the empirical data mentioned above shows, the processing fluency of one and the same item can give rise to feelings with very different contents (Unkelbach, 2006; Alter & Oppenheimer, 2009; Landwehr & Eckman, 2020). This leaves us with the question of what determines the content of a feeling. A first empirically documented candidate for this role is the cognitive task a subject is prompted to engage in, as illustrated by the example in Sect. 4.1 in which subjects were asked whether an item was pleasant or not, as well as whether it was old or not. A second candidate are background beliefs,<sup>26</sup> as when a subject knows (for instance) that having processed an item in the past makes it easier to process it again in the future (Unkelbach & Greifeneder, 2013 for a review). We propose to group these factors

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<sup>25</sup> The empirical literature is unclear on the issue of the relationship between these two feelings, both with regard to the underpinning mechanisms giving rise to them and their phenomenological characterizations. For instance, Jacoby et al., 1989, and Whittlesea, 1997, take for granted without further argument that the feeling of pastness and the feeling of familiarity are one and the same thing. For a criticism of the phenomenological unclarity of the attributionalist literature, see Hoerl (2001). For discussion of non-intentional elements that distinguish familiarity and pastness, see our (Perrin et al., 2020) and Kurilla & Westerman (2011). While important, pursuing this point any further is beyond the scope of this paper.

<sup>26</sup> More precisely, Unkelbach & Greifeneder (2013) distinguish between background beliefs learned through feedback from the subject’s environment in a perception-like manner, and background beliefs that take the more elaborate form of naïve theories about the interpretation to give of procedural cues. Our argument does not depend on this refinement.

under the label of “context”, and to say that the feeling of pastness is *context-sensitive*.<sup>27</sup> Two implications of this claim will refine the second constraint.

On the one hand, and of particular importance, the dependence on the cognitive task shows that there is no fixed content systematically associated with processing fluency.<sup>28</sup> As we noted in 4.2, fluency is informationally opaque to its causal source. Therefore, there is no rescue for the intentionalist content-sensitivity claim in saying that, while pastness is not grounded on the content of the memory to be sure, it is grounded on a content that is systematically associated with fluency, for instance the content that “an item whose processing exhibits relatively high fluency has been encountered in the past”. On the other hand, while the feeling of pastness should not be grounded on certain components of content, if our previous remarks are correct, its context-sensitivity suggests that it is dependent on the psychological mode under which the content is entertained. In the above experiments, fluency triggers a feeling of pastness as opposed to pleasantness because subjects are prompted to entertain a content under a *mnemonic* psychological mode by the experimental task they are presented with, the mode selecting the type of content of the feeling the subjects can enjoy.<sup>29</sup> Thus, while the feeling of pastness is not dependent on the content, it is dependent on the psychological mode under which it is entertained. In this sense, the context-sensitivity constraint refines the content-insensitivity constraint into an insensitivity to the components of the content. In brief, fluency jointly with its context is sufficient for the feeling of pastness.

As a third constraint, any satisfactory account of the feeling of pastness must explain how subjects solve the process problem through temporal phenomenology, i.e., they must be capable of identifying a mental state as being *mnemonic* by experiencing a feeling of pastness. This means that a satisfactory account of the feeling of pastness must not postulate that subjects become aware of a mental state as being mnemonic prior to their experiencing the feeling of pastness. For the feeling of pastness is precisely what makes such an awareness possible.

<sup>27</sup> By bringing background beliefs into play, one could object, we are required to admit that some content takes part in the production of a feeling of pastness. While we agree with this comment, we note that the content in question is not the content of the first-order memory accompanied by the feeling of pastness, which is just what intentionalism argues for and what we reject in this paper. On the same note, one could say that in a loose sense our account makes the content of the first-order memory play a role in the production of the feeling of pastness, since fluency is a feature of the processes that underpin the first-order memory. Again, while we agree with this comment, we insist that what underpins the production of the feeling of pastness are not the semantic features constitutive of the content, but the procedural features of the vehicle of the latter.

<sup>28</sup> Some people even go so far as to say that depending on the task context, fluency can give rise to feelings with opposite meanings (see Unkelbach, 2006, and Landwehr & Eckmann, 2020), a view that is discussed by Olds & Westerman (2012), however.

<sup>29</sup> Like we said above (footnote 4), our account does not claim that the mnemonic psychological mode would exhibit an intrinsic proprietary phenomenology, the feeling of pastness, for instance. Differently, we say that the mode selects the content of the metacognitive feeling triggered by fluency detection and associated to the memory. It is thus a feeling distinct from the mode that provides the memory with its pastness phenomenology.

More specifically, it is important that this constraint be met in the two possible cases of voluntary and involuntary memories<sup>30</sup> where the phenomenology plays different roles in solving the process problem. In the former case, since the subject's intentional project is to remember, the phenomenology allows her to know if she has succeeded in doing so or not. In the latter case, since the subject has not the intentional project to remember and assesses a mental state that unexpectedly comes to her mind, it allows her to know which kind of mental state—mainly remembering or imagining—she is undergoing. Thus, in the case of voluntary memory, for the process problem to be solved through phenomenology, awareness of the fact that one is remembering must not be due to awareness of the mental state one is entertaining, but rather to something distinct from it, for instance an external cue given by the experimenter or the environment. In the case of involuntary memory, in contrast, for the process problem to be solved through phenomenology, awareness of the fact that one is remembering must not be due to any awareness of the mnemonic character of her mental state. As we saw, the intentionalist view falls prey to circularity in either case, due to the fact that it posits awareness of a mental state as mnemonic as a condition for the feeling of pastness to occur. Overall, the feeling of pastness must allow for the identification of the mnemonic mental mode enjoyed in the two cases.

As we will argue now, while the intentionalist view fails to do so, the metacognitive view, as we might call it, respects these three constraints in a coherent way.

## 5.2 The metacognitive view satisfies the constraints

How does the metacognitive view fare with regard to the above three constraints? As a preliminary step, let us specify what we mean by 'metacognitive view'. It comprises a family of empirically-motivated frameworks (the attributionalist framework, Jacoby et al., 1989; the production-and-evaluation framework, Whittlesea, 1997; Kurilla & Westermann, 2008, 2011; the source-monitoring framework, Johnson et al., 1993, Mitchell & Johnson, 2000) according to which the mind possesses the ability to evaluate and thereby control its own cognitive operations and abilities. On the standard dual-processing picture of metacognition (Koriat, 2007; Proust, 2007; Arango-Muñoz, 2011), it can do so in two different ways, i.e., in the form of explicit, controlled, slow, conceptually articulated processing—sometimes labelled type 2 processing—that involves the application of a theory of mind; or in the form of implicit, automatic, fast, and conceptually poor processing—sometimes labelled type 1 processing. Type 1 evaluation is typically grounded on subpersonal detection and interpretation of procedural features involved by a cognitive operation, and has as its outputs feelings whose contents consist in the evaluation of an operation and/or a cognitive ability. For instance, when one fails to put one's finger on the answer to a question but feels that one knows it, the metacognitive view says that the mind carries out a type 1 metacognitive evaluation to the effect that one assigns to oneself a cognitive ability through a gut feeling, namely a feeling of knowing. In essence,

<sup>30</sup> By "voluntary memory", we mean a memory that the rememberer had the intentional project to form beforehand. By "involuntary memory", by contrast, we mean a memory that pops up in the rememberer's mind while she had not the intention to remember.

our proposal is that the feeling of pastness is a metacognitive feeling resulting from a type 1 metacognitive evaluation. Due to fluency detection and interpretation at the subpersonal level, the subject is conscious of an item or a mental scene as originating from a previous experience. The feeling of pastness is thus an *epistemic* feeling to the effect that its content conveys information about the epistemic relation of the subject to the item or the scene, namely that she knows it firsthand and that her current memory derives causally from the experience of the event that her memory represents.<sup>31</sup> Building on this proposal, our claim in this paper is that an account of the feeling of pastness in episodic remembering along the lines of the metacognitive view meets the mentioned three constraints, thus placing it in a much better position than the intentionalist view, in particular the one proposed by Fernández (2019). Let us explain.

Firstly, and this is the separatist claim implied by the metacognitive view,<sup>32</sup> the occurrence of a feeling of pastness is not dependent on the content of the memory it accompanies. Instead, in contrast to type 2 metacognitive evaluations that are grounded on semantic content (e.g. the explicit belief that one has attended a course in which they learnt about the topic relating to a question being asked), the feeling of pastness is an epistemic feeling<sup>33</sup> that is triggered by subpersonal detection of non-semantic procedural features of the mental state it accompanies, e.g., fluency, but also other features, such as the ones discussed by Whittlesea & Leboe (2000). In brief, once the feeling of pastness is conceived of as a metacognitive feeling, the content-insensitivity constraint is met in a neat way.

Secondly, and this is the contextualist claim of the metacognitive view,<sup>34</sup> the feeling that is triggered by detection often has its content determined by the context of the cognitive task in which the remembering subject is engaged. On the metacognitive view, when a subject is processing a mental state—e.g., perceiving an item—and monitoring this cognitive activity, she detects procedural features to which she assigns a content through an interpretation operation. Thus, one and the same procedural feature can be potentially endowed with different contents—e.g., pastness or pleasantness—which then result in feelings with different contents at the personal level. The crucial point here is that the subject typically does this in accordance with the context of the ongoing cognitive task—e.g., deciding whether the perceived item is pleasant or whether it has been encountered previously—with the task being fixed experimentally or ecologically. For instance, the fluency of the processing of a perceived word can be attributed to a current phonetic property of the word as well as to a past encounter with it, with the subject enjoying a feeling of pastness or pleasantness accordingly. It is, therefore, highly plausible that context plays a central role in the interpretation of the detected procedural feature. In brief, once the feeling of

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<sup>31</sup> On epistemic feelings, see Arango-Muñoz (2014). On the temporal phenomenology of episodic remembering as an epistemic feeling, see our (Perrin et al., 2020).

<sup>32</sup> In line with what we said in footnote 6, remember that intentionalism is an anti-separatist view, according to which phenomenology is dependent on content. Separatism, by contrast, argues for the independence of phenomenology from content.

<sup>33</sup> The feeling of pastness is an ‘epistemic’ feeling to the effect that it represents the causal origin of the mental state it accompanies.

<sup>34</sup> See Whittlesea (1997, p. 220).

pastness is conceived of as a metacognitive feeling, the context-sensitivity constraint is met, in particular regarding the cognitive-task-context dependence.

Thirdly and finally, contrary to the supervenience view discussed above, the metacognitive view does not fall prey to circularity in dealing with the process problem. Since what explains the feeling of pastness—i.e., the non-conscious subpersonal processes of detection and interpretation—is different from any consciousness of memory as memory, there is no circularity in claiming that the feeling of pastness is what allows us to identify memory as such. Specifically, as far as voluntary memory cases are concerned, the metacognitive view suggests that it is the experimental task or the intentional project that determines the mode of the mental state that one undergoes, thereby also the content of the feeling to which fluency possibly gives rise to. Moreover, as far as involuntary memory cases are concerned, the metacognitive view suggests that the same role is played by background beliefs, like naïve theories about the meaning of fluency, or by whatever contextual unconscious cues are at play. What matters here is that, for the feeling of pastness to occur, the awareness the subject has of her mental state does not have to convey the information that it is a mnemonic state beforehand. Given the automatic character of detection and interpretation of fluency, it is plausible that no such information is used, and even if it were, it would likely be provided by something different from the awareness of one's mental state as mnemonic. In brief, all in all, once the feeling of pastness is conceived of as a metacognitive feeling, it can secure the ability of temporal phenomenology to solve the process problem.<sup>35</sup>

In summary, then, once we take these three constraints into account, it becomes clear that the metacognitive view of the feeling of pastness should be preferred over its rival intentionalist option.

## 6 Conclusions

The goal of this paper was to oppose and adjudicate between the two main views—the intentionalist view and the metacognitive view—available to account for the temporal phenomenology of episodic remembering understood as a feeling of pastness. We showed, on the one hand, that the intentionalist view, in particular as Fernández (2019) fleshes it out, ultimately fails as an account of the feeling of pastness, and on the other hand, that the metacognitive account hits the mark precisely where intentionalism fails, and should therefore be preferred.

Concerning the first point, we argued that Fernández' self-referential view is problematic because of his reliance on an ambiguous notion of an “experience of content” and because his view is unable to explain how phenomenology is used to solve the process problem. Building on these issues, we argued that intentionalism more generally is also problematic. But the outcomes of our critical discussion were not merely negative. Along the way, we gathered three meta-theoretical constraints that are conditions for any satisfactory account of the proprietary temporal phenomenology of

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<sup>35</sup> Remember that, for our purposes, we focus on the process problem in relation to temporal phenomenology only.

episodic remembering, namely the content-insensitivity, the context-sensitivity, and the ability to use phenomenology to identify a mental state as a memory by means of the feeling of pastness. In particular, based on recent empirical research, we argued that the feeling of pastness is not sensitive to the content of episodic memory, but rather to its procedural features and the context in which a memory happens. So, it cannot be that the feeling of pastness is explained in terms of the content of episodic memory.

Our critical discussion of the intentionalist view, together with the constraints that transpired from it, paved the way for our second goal, namely advocating for the metacognitive view. On this view, the feeling of pastness is an attribution that we make on the basis of the subpersonal detection of procedural features of episodic remembering. Because the underlying processes responsible for making such an attribution are informationally opaque and context-sensitive, the metacognitive view provides us with an account of the feeling of pastness that meets our first two constraints in particular, and falls nicely in line with recent empirical research on how the phenomenology of episodic memory is produced. As such, we conclude, it should be preferred over its rival intentionalist approach.

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## References

- Alter, A. L., & Oppenheimer, D. M. (2009). Uniting the tribes of fluency to form a metacognitive nation. *Personality and Social Psychology Review*, 13 (3) (2009), 219–235
- Ansons, T. L., & Leboe, J. P. (2011). The Constructive Nature of Recollection. In Higham, P. A., & Leboe, J. P. (eds.). (2011). *Constructions of remembering and metacognition: Essays in honour of Bruce Whittlesea* (pp. 65–78). Basingstoke: Palgrave Macmillan
- Arango-Muñoz, S. (2011). Two levels of metacognition. *Philosophia*, 39(1), 71–82
- Arango-Muñoz, S. (2014). The nature of epistemic feelings. *Philosophical Psychology*, 27, 187–211
- Bernecker, S. (2008). *The Metaphysics of Memory*. Springer, 2008
- Brown, R., & Mandik, P. (2012). On Whether the Higher-Order Thought Theory of Consciousness Entails Cognitive Phenomenology, Or: What Is It Like to Think That One Thinks That P? *Philosophical Topics*, 40(2), 1–12
- Byrne, A. (2001). Intentionalism defended. *Philosophical Review*, 110(2), 199–240
- Chalmers, D. (2006). The Representational Character of Experience. In B. Leiter (Ed.), *The Future for Philosophy* (pp. 153–181). Oxford: Clarendon Press
- Chasid, A., & Weksler, Y. (2020). Belief-like imaginings and perceptual (non)assertoricity". *Philosophical Psychology*. doi: <https://doi.org/10.1080/09515089.2020.1751104>
- Debus, D. (2010). Accounting for Epistemic Relevance: A New Problem for the Causal Theory of Memory. *American Philosophical Quarterly*, 47, 17–29
- Dokic, J. (2012). Seeds of self-knowledge: noetic feelings and metacognition. In M. J. Beran, J. Brandl, J. Perner, & J. Proust (Eds.), *Foundations of Metacognition* (pp. 302–321). Oxford: Oxford University Press
- Dokic, J. (2014). Feeling the past: A two-tiered account of episodic memory. *Review of Philosophy and Psychology*, 5(3), 413–426



- Dokic, J., & Martin, J. R. (2015). 'Looks the same but feels different', a metacognitive approach to cognitive penetrability. In J. Zeimbekis, & A. Raftopoulos (Eds.), *The cognitive penetrability of perception, new philosophical perspectives* (pp. 241–267). Oxford: Oxford University Press
- Dretske, F. (1995). *Naturalizing the Mind*. Cambridge, MA: MIT Press
- Fernández, J. (2018). Observer memory and immunity to error through misidentification. *Synthese*. <https://doi.org/10.1007/s11229-018-02050-3>
- Fernández, J. (2019). *Memory: A self-referential account*. New York: Oxford University Press
- Gardiner, J. M. & Ramponi, C. (1998). Experiences of Remembering, Knowing, and Guessing. *Consciousness and Cognition*, 7, 1–26
- Gennaro, R. J. (2004). Higher-order theories of consciousness: An overview. In R. J. Gennaro (Ed.), *Higher-Order Theories of Consciousness. An Anthology* (pp. 1–13). Amsterdam / Philadelphia: John Benjamins Publishing Company
- Hoerl, C. (2001). The Phenomenology of Episodic Recall. In C. Hoerl, and McCormack (Eds.), *Time and memory: Issues in Philosophy and Psychology* (pp. 315–335). New York/Oxford: Oxford University Press
- Horgan, T., & Tierson, J. (2002). The Intentionality of Phenomenology and the Phenomenology of Intentionality. In D. Chalmers (Ed.), *Philosophy of mind: Classical and contemporary readings* (pp. 520–533). New York/Oxford: Oxford University Press
- Jacoby, L. L., & Dallas, M. (1981). On the Relationship Between Autobiographical Memory and Perceptual Learning. *Journal of Experimental Psychology*, 110(3), 306–340
- Jacoby, L., Kelley, C. M., & Dywan, J. (1989). Memory attributions. In H. L. Roediger, & F. I. M. Craik (Eds.), *Varieties of memory and consciousness: Essays in honour of Endel Tulving* (pp. 391–422). Hillsdale: Lawrence Erlbaum
- James, W. (1890). *The principles of psychology* (1 vol.). New York: Henry Holt and Company
- Jeshion, R. (Ed.). (2010). *New Essays on Singular Thought*. Oxford: Oxford University Press
- Johnson, M., Hashtroudi, S., & Lindsay, D. S. (1993). Source Monitoring. *Psychological Bulletin*, 114(1), 3–28
- Klein, S. B., German, T. P., Cosmides, L., & Gabriel R. (2004). A theory of autobiographical memory: Necessary components and disorders resulting from their loss. *Social Cognition*, 22(5), 460–490
- Klein, S. (2013). Making the case that episodic recollection is attributable to operations occurring at retrieval than to content stored in a dedicated subsystem of long-term memory. *Frontiers in behavioural neuroscience*, 7(3), 1–14
- Klein, S. (2015a). What memory is? *WIREs Cognitive Science*, 6(1), 1–38
- Klein, S. (2015b). Autooetic consciousness: Reconsidering the role of episodic memory in future-oriented self-projection. *The Quarterly Journal of Experimental Psychology*, 69(2), 381–401
- Koriat, A. (2007). Metacognition and consciousness. In P. D. Zelazo, M. Moscovitch, & E. Thompson (Eds.), *The Cambridge Handbook of Consciousness* (pp. 289–325). New York: Cambridge University Press
- Kurilla, B. P., & Westerman, D. L. (2008). Processing fluency affects subjective claims of recollection. *Memory & Cognition*, 36(1), 82–92
- Kurilla, B. P., & Westerman, D. L. (2011). Inferential processes in subjective reports of recollection. In P. A. Higham & J. P. Leboe (Eds.), *Constructions of remembering and metacognition* (pp. 79–90). New York: Palgrave Macmillan
- Landwehr, J. R., & Eckmann, L. (2020). The nature of processing fluency: Amplification versus hedonic marking. *Journal of Experimental Social Psychology*, vol. 90, 103997
- Leboe-McGowan, J. P., & Whittlesea, B. (2013). Through the SCAPE looking glass-sources of performance and sources of attribution. In D. Reisberg (Ed.), *The Oxford Handbook of Cognitive Psychology* (pp. 243–266). New York: Oxford University Press
- Lycan, W. (1996). *Consciousness and Experience*. Cambridge, MA: MIT Press
- Mahr, J. B., & Csibra, G. (2018). Why do we remember? The communicative function of episodic memory. *Behavioral and Brain Sciences*, 41, 1–16
- Mahr, J. B. (2020). The dimensions of episodic simulation. *Cognition*, 196, 1–15
- Matthen, M. (2010). Is memory preservation? *Philosophical Studies*, 148(1), 3–14
- Michaelian, K. (2016). *Mental time travel: Episodic memory and our knowledge of the past*. Cambridge, MA: MIT Press
- Mitchell, K. J., & Johnson, M. (2000). Source Monitoring. Attributing Mental Experiences. In F. I. M. Craik, & E. Tulving (Eds.), *The Oxford Handbook of Memory* (pp. 179–195). Oxford: Oxford University Press

- Olds and Westerman. (2012). Can fluency be interpreted as novelty? Retraining the interpretation of fluency in recognition memory. *Journal of Experimental Psychology*, 38, 653–664. doi: <https://doi.org/10.1037/a0026784>
- Oppenheimer, D. M. (2008). The secret life of fluency. *Trends in Cognitive Sciences*, 12(6), 237–241
- Perner, J. (2000). Memory and the theory of mind. In F. I. M. Craik, & E. Tulving (Eds.), *The Oxford Handbook of Memory* (pp. 297–312). Oxford: Oxford University Press
- Perner, J. (2001). Episodic Memory: Essential Distinctions and Developmental Implications. In K. Lemmon, & C. Moore (Eds.), *The Self in Time – Developmental Perspectives* (pp. 181–202). Londres, Lawrence Erlbaum
- Perrin, D. (2018). A Case For Procedural Causality in Episodic Recollection. In K. Michaelian, D. Debus, & D. Perrin (Eds.), *New Directions in the Philosophy of Memory* (pp. 33–51). New York: Routledge
- Perrin, D., Michaelian, K., & Sant'Anna, A. (2020). The Phenomenology of Episodic Remembering is an Epistemic Feeling. *Frontiers in Psychology*. <https://doi.org/10.3389/fpsyg.2020.01531>
- Proust, J. (2007). Metacognition and metarepresentation: Is a self-directed theory of mind a precondition for metacognition? *Synthese*, 159(2), 271–295
- Recanati, F. (2007). *Perspectival Thought: A Plea for (Moderate) Relativism*. Oxford: Oxford University Press
- Russell, B. (1921). *The analysis of mind*. London: G. Allen & Unwin Ltd: The Macmillan Company
- Schwarz, N. (2004). Metacognitive experiences in consumer judgment and decision making. *Journal of Consumer Psychology*, 14(4), 332–348
- Siewert, C. (2017). In E. N. Zalta (Ed.), *Consciousness and Intentionality*. *Stanford Encyclopedia of Philosophy* (Fall 2021 Edition) URL=<https://plato.stanford.edu/archives/fall2021/entries/consciousness-intentionality>
- Szpunar, K. K. (2011). On subjective time. *Cortex*, 47(3), 409–411
- Tulving, E. (1983). *Elements of Episodic Memory*. Oxford: Clarendon Press
- Tulving, E. (1985). Memory and consciousness. *Canadian Psychology/Psychologie Canadienne*, 26(1), 1–12
- Tulving, E. (1993). Self-knowledge of an amnesic individual is represented abstractly. In T. K. Srull, & R. S. Wyer (Eds.), *Advances in Social Cognition* (vol. 5, pp. 147–156). Hillsdale, NJ: Erlbaum
- Tulving, E. (2002a). Episodic memory: From mind to brain. *Annual Review of Psychology*, 53(1), 1–25
- Tulving, E. (2002b). Chronesthesia: Conscious awareness of subjective time. In D. T. Stuss, & R. T. Knight (Eds.), *Principles of frontal lobe function* (pp. 311–325). Oxford: Oxford University Press
- Tulving, E. (2005). Episodic memory and autoeosis: Uniquely human?. In H. S. Terrace, & J. Metcalfe (Eds.), *The Missing Link in Cognition* (pp. 4–56). New York, NY: Oxford University Press
- Tye, M. (1995). *Ten Problems of Consciousness*. Cambridge, MA: MIT Press
- Tye, M. (2002). *Consciousness, Color, and Content*. Cambridge, MA: MIT Press
- Unkelbach, C. (2006). The learned interpretation of cognitive fluency. *Psychol. Sci*, 17, 339–345. doi: <https://doi.org/10.1111/j.1467-9280.2006.01708.x>
- Unkelbach, C., & Greifeneder, R. (2013). A general model of fluency effects in judgment and decision making. In C. Unkelbach, & R. Greifeneder (Eds.), *The experience of thinking: How the fluency of mental processes influences cognition and behaviour* (pp. 11–32). Psychology Press
- Whittlesea, B. (1993). Illusions of familiarity. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 19(6), 1235–1253
- Whittlesea, B. (1997). Production, evaluation, and preservation of experiences: constructive processing in memory and performance tasks. *The Psychology of Learning and Motivation*, 37, 211–264
- Whittlesea, B., & Leboe, J. P. (2000). The heuristic basis of remembering and classification. *Journal of Experimental Psychology: General*, 129(1), 84–106
- Wheeler, M., Stuss, D. T., & Tulving, E. (1997). Toward a Theory of Episodic Memory: The Frontal Lobes and Autoeotic Consciousness. *Psychological Bulletin*, 121(3), 331–354
- Williams, H. L. & Moulin, C. J. A. (2015). Know versus Familiar: Differentiating states of awareness in others' subjective reports of recognition. *Memory*, 23(7), 981–90