

‘Attitude reports and continuism’  
(title suppressed for blind review)

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**Abstract**

Much recent work in philosophy of memory discusses the question whether episodic remembering is continuous with imagining. This paper contributes to the debate between continuists and discontinuists by considering a previously neglected source of evidence for continuism: the linguistic properties of overt memory and imagination reports (e.g. sentences of the form ‘*x* remembers/imagines *p*’). I argue that the distribution and truth-conditional contribution of episodic uses of the English verb *remember* is surprisingly similar to that of the verb *imagine*. This holds despite the presence of some remarkable truth-conditional differences between *remember* and *imagine*. I show how these differences can be explained by a continuist account of remembering on which remembering is past-directed, referential, and accurate experiential imagining.

## 1 Introduction

Much recent work in neuroscience, psychology, and philosophy discusses the question whether episodic remembering is a special kind of imagining (Perrin, 2016; see e.g. Perrin and Michaelian, 2017; Schacter and Addis, 2020; Langland-Hassan, 2021; dos Santos et al., 2022). Continuists about memory and imagination – who affirm this question – hold that episodic memory is a form of (imaginative) mental time travel, such that remembering and imagining only differ in their temporal orientation and in degree (Addis, 2020; Michaelian,

2016; Munro, 2021). Discontinuists – who deny it – argue that remembering the past is fundamentally different from imagining the future (Debus, 2014; Robins, 2020; Sant’Anna, 2023), such that episodic memory is a natural kind (Cheng et al., 2016; Werning, 2020).

The debate between continuists and discontinuists is fuelled by the observation that, at least initially, philosophy and neuroscience have associated with opposing camps in this debate: while neuroscientists have found that remembering past events and simulating future events rely on many of the same cognitive and neural processes (thus supporting continuism; see Addis et al., 2007; Hassabis and Maguire, 2007; Szpunar et al., 2007), philosophers have held that remembering – unlike imagining – places demanding causal, referential, and accuracy conditions on its objects (see Martin and Deutscher, 1966; Bernecker, 2010; Debus, 2014).<sup>1</sup>

Following the early philosophical reception of Addis et al.’s findings (e.g. in De Brigard, 2011; Michaelian, 2011, 2016), contemporary philosophy of memory has incorporated continuist arguments into its positions on the memory/imagination-relation (see Langland-Hassan, 2023; Sant’Anna, 2023; Werning, 2020). However, at present, arguments for and against continuism seem to be keeping balance. Anticipating this situation, Perrin and Michaelian (2017) write, “Given that there is [...] evidence for both continuities and discontinuities between episodic memory and [future-oriented mental time travel], such evidence is unlikely to settle the debate” (p. 231).

My paper seeks to break this deadlock by considering a previously neglected source of evidence for continuism: the linguistic properties of overt<sup>2</sup> memory and imagination

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<sup>1</sup>Since there exist several accessible overviews of the continuism/discontinuism-debate (see e.g. Michaelian, 2020; Perrin and Michaelian, 2017), I refrain from (re-)introducing this debate beyond what is surveyed above.

<sup>2</sup>These differ from covert memory/imagination reports, which do not contain the attitude verb *remember* or *imagine* (or their cognates like *recall* or *visualize*). Covert reports describe the memory or imagination content directly, without explicit reference to the mental state itself. Instances of an overt and a covert report are given in (★):

- (★) a. Cecilia {remembers, imagines} a spider webbing in her office. (overt report)  
b. A spider was/is webbing in my office. [uttered by Cecilia] (covert report)

I thank Sven Bernecker for pointing out the importance of this distinction to me.

reports. The latter are mental state ascriptions of the form ‘ $x$  remembers/imagines  $p$ ’, that agents use to talk about (their own, and other agents’) memories and imaginings. Relevant linguistic properties of such reports include (i) which kinds of grammatical constructions (e.g. *that*-clauses) can take the place of  $p$  [‘selection’], (ii) which expressions (e.g. *vividly*, *from below*) can further specify the remembering or imagining [‘modification’], and (iii) which kinds of evaluative circumstances make their reports true [‘truth-conditional contribution’]. Since (i) and (ii) both address the distribution of the verbs *remember* and *imagine* – and since they both concern properties of verbs or predicates (rather than of full sentences) –, I will sometimes treat them together.

My paper finds that the distribution and truth-conditional contribution of the English verb *remember* is surprisingly similar to that of the verb *imagine*. This holds despite the presence of some remarkable truth-conditional differences between these two verbs. Sections 3 to 5 of the paper discuss these similarities and differences. Section 6 shows how the truth-conditional differences between *remember* and *imagine* can be explained by a continuist account of episodic memory, on which remembering is past-directed, referential, and accurate imagining. I take the availability of such account as new evidence for continuism. To prepare my comparative investigation of English memory and imagination reports, I will first describe and motivate the method of semantic ascent, which is applied throughout this paper. I will also present some diagnostic tests for distinguishing episodic from propositional [= ‘semantic’] uses of the verbs *remember* and *imagine* (in Sect. 2).

## 2 The Language of Remembering and Imagining

### 2.1 Methodology: semantic ascent

To identify the similarities and differences between remembering and imagining, this paper uses Quine’s (1953) method of semantic ascent. The latter is a language-based approach to mental states that seeks to better understand these states by studying the way in which ordinary speakers talk about them (by reporting their own mental states, and by

ascribing mental states to others; see De Brigard, 2023, p. 40).<sup>3</sup> This approach is taken in Martin and Deutscher’s (1966) argument for the distinction between episodic and semantic memory, in Bernecker’s (2010) argument for the distinction between experiential and propositional memory content (see also Addis et al., 2008), in Le’s (2020) distinction between field and observer memories, and in Perrin et al.’s (2022) argument for the distinction between the representational contents of the feelings involved in *déjà vu* and *déjà vécu*.

The language-based approach relies on a structural correspondence between agents’ mental states and the language that is used to attribute these states. Granted this correspondence, the approach assumes that we can infer the properties and behavior of memory (or of imagination) from the properties and behavior of linguistic *remember-* (resp. *imagine-*) reports. The difference between the direct and the language-based indirect approach to mental states is illustrated in Figure 1.<sup>4</sup> To avoid complications that are incurred by the experience-dependence of remembering (see Sect. 5.3 and the introduction to Sect. 4), this illustration uses the example of visual perception.

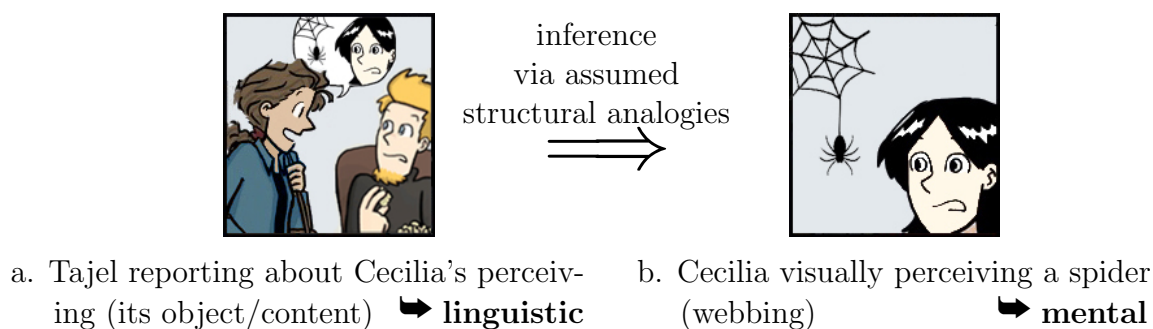


Figure 1: The language-based vs. the direct approach to perception.

Recently, semantic ascent has been criticized for the lack of reliable inferences from linguistic to mental distinctions, or from particular linguistic to mental properties. Summarizing these objections, Blumberg (2019) remarks that “language is one thing, and the mind is another” (p. 5). This objection to semantic ascent notwithstanding, it is difficult

<sup>3</sup>In the philosophical literature, this approach is sometimes called the ‘language-first’ approach to mental content (see Moltmann, 2024; Blumberg, 2019, Sect. 1.3). To avoid the implicit contrast with ‘mental-first’ (as drawn e.g. in Phillips, 2023), I instead use the weaker description ‘language-based’.

<sup>4</sup>Source: based on Jorge Cham. Piled Higher and Deeper. <https://phdcomics.com/>.

to see how one could, at present, obtain more reliable information about (some areas of) the human mind (see Perrin et al., 2022). Given that we are still a long way away from an accurate brain-to-mind mapping (*pace* impressive recent advances in neuroscience), it seems difficult to see how else one could proceed.

Given the above, there have been surprisingly few defenses of the language-based approach to mental states. Existing attempts refer to the fact that linguistic semantics provides formal tools that may also benefit the analysis of mental states, to philosophy of language’s long-standing interest in these states, and to the fact that supporting the linguistic/mental-correspondence is in itself an interesting challenge (see Blumberg, 2019). The present paper advances another line of support for semantic ascent: Given that there is a very (!) close correspondence between the properties of memory/imagination and *remember-/imagine*-reports, it would be extremely surprising if this correspondence turned out to be a local coincidence. This holds especially since this correspondence can be observed for diverse phenomenological and other properties, and since it is also attested by other experience-dependent mental states (e.g. by hallucinating and dreaming). I will identify several such properties in Sections 3 and 4.

## 2.2 Experiential vs. propositional remembering and imagining

Remembering – like imagining – is typically taken to come in two kinds: experiential (or ‘episodic’) and propositional (or ‘semantic’)<sup>5</sup> remembering (see e.g. Bernecker, 2010; Michaelian et al., 2020; Tulving, 1972). Episodic remembering is intuitively taken to be a relation to a personally experienced past event, scene, or scenario<sup>6</sup> (e.g. some spider webbing in Cecilia’s office). Propositional remembering is a relation to a proposition or proposition-like object, e.g. a fact (e.g. that the spider was a black house spider).

It has long been assumed that the episodic/propositional-distinction is grammatically coded by the distinction between *that*-clauses like (1b) and gerundive *-ing* constructions

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<sup>5</sup>To avoid an ambiguous use of ‘semantic’ between an adjective for non-experiential remembering/imagining and for conventional context-independent meaning, I hereafter use the term ‘propositional’ to describe fact-only remembering (analogously for non-experiential imagining).

<sup>6</sup>In this paper, we will use the terms ‘event’/‘scene’ and ‘scenario’ interchangeably, without suggesting an ontological difference.

like (1a) (see Bernecker, 2010; Craver, 2020). This assumption is supported by the observation that only (1b-i), but not (1a-i), is true if Cecilia only knows from testimony that a spider was webbing in her office (e.g. because Tajel told her about it), but has not witnessed the relevant webbing-event herself.

- (1) a. Cecilia {i. remembers, ii. imagines} a spider webbing in her office.  
 b. Cecilia {i. remembers, ii. imagines} that a spider was webbing in her office.

The difference (regarding their preconditions) between propositional and episodic remembering is illustrated in Figure 2.



a. Tajel told Cecilia that a spider was webbing in her office ➔ **testimony**



b. Cecilia has seen a spider web in her office ➔ **experience**

Figure 2: The experiential base for propositional vs. experiential remembering.

Recent work in the philosophy of language and mind has questioned a strict grammaticalization of the propositional/episodic-distinction (see e.g. De Brigard, 2011; Liefke, 2023a; Werning and Cheng, 2017). This questioning is due to the observation that (1a-i) and (1b-i) are both true in a situation where Cecilia herself has seen a spider web in her office, such that the alleged grammaticalization cannot hold for the direction ‘*that* → propositional’. Another reason for questioning the propositional/episodic-grammaticalization is that, in many languages (incl. German), *remember* and *imagine* reject *-ing* constructions, such that this grammaticalization – if it were to hold in a particular language – would not be cross-linguistically robust (see also De Brigard, 2023).

Despite the above, episodic uses of *remember* and *imagine* can be distinguished from propositional uses through a number of diagnostic properties. These include the possibility of replacing the clause that is embedded under episodic uses of *remember* or *imagine* by an explicitly event- or scene-denoting expression (see Liefke, 2024; Umbach et al., 2022) and of inferring the agent’s direct experience of the scene that is described by this

clause (see Stephenson, 2010). For (1a), these diagnostics are exemplified by (2a) and (2b), respectively:

- (2) Cecilia {i. remembers, ii. imagines} a spider webbing in her office.
- ≡ a. Cecilia {i. remembers, ii. imagines} *an event/scene in which* a spider was webbing in her office.
- ⇒ b. Cecilia {i. has perceptually experienced, ii. mentally simulated} a spider webbing in her office.

The *that*-clause counterpart of (1a), i.e. (1b), fails these diagnostics as expected. This failure is even more apparent in *that*-clause memory and imagination reports like (3), whose embedded clause blocks an episodic reading. In particular, given that being a house spider is not (straightforwardly) an action of perceivable property, it seems very hard – if not impossible – to construct an event or scene in which a certain spider is a house spider.

- (3) Cecilia {i. remembers, ii. imagines} that the spider from her office was a black house spider.
- ≠ a. ??Cecilia {i. remembers, ii. imagines} *a scene in which* the spider from her office was/is a black house spider.
- ≠ b. ??Cecilia {i. has experienced, ii. mentally simulated} the spider from her office being a black house spider.

I will return to these considerations in Section 3.1. There, I will introduce two further diagnostic properties (i.e. modification through *vividly* and through locative modifiers or viewpoint adjuncts). In what follows, I take ‘memory’ respectively ‘imagination’ and the verbs *remember* or *imagine* to refer to episodic memory/imagination and to episodic uses of the verb *remember* respectively *imagine*.

### 3 Distributional Similarities

I have suggested above that – granted semantic ascent – distributional similarities between the English verbs *remember* and *imagine* can be taken as support for continuism about

episodic remembering and imagining. Below, I identify two kinds of such similarities, starting with selectional similarities (in Sect. 3.1). The latter are similarities that regard the different grammatical constructions with which the verb combines. I will then turn to similarities regarding which expressions can modify episodic uses of *remember* and *imagine* (in Sect. 3.2).

### 3.1 Selectional similarities

Recent work in linguistics and the philosophy of language has found that the verbs *remember* and *imagine* embed the same kinds of grammatical constructions. These include gerundive *ing*-constructions with a covert subject (i.e. the silent pronoun PRO; see (4a)), with a reflexive subject (see (4b)), with an explicit subject (see (4c)), and with a possessive subject (see (4d)).<sup>7</sup> *Remember* and *imagine* further license ‘free relative’-readings of interrogative clauses (4e), *whether*-clauses (4f), eventive *how*-complements (4h), *that*-clauses (4g), explicitly event-denoting expressions (4i) and event nominalizations (4j), as well as concrete and abstract direct objects (4k/l).

(4)	{	a.	<b>PRO</b> moving.	(PRO- <i>ing</i> construction)
		b.	<b>herself</b> moving.	(PRO/ACC- <i>ing</i> )
		c.	a spider moving.	(ACC- <i>ing</i> construction)
		d.	a spider’s moving.	(POSS- <i>ing</i> construction)
		e.	<b>who</b> was moving.	(free relative clause)
Cecilia remembers/ imagines	{	f.	<b>whether</b> a spider was moving.	( <i>whether</i> -clause)
		g.	<b>that</b> a spider was moving.	( <i>that</i> -clause)
		h.	<b>how</b> a spider was moving.	(eventive <i>how</i> -clause)
		i.	<b>an event</b> in which a spider was ...	(eventive object)
		j.	a move (of a spider).	(event nominalization)
		k.	a spider.	(concrete object)
		l.	Tajel’s claim (viz. that ...).	(abstract object)

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<sup>7</sup>*Remember* and *imagine* also combine with procedural *how* (as in *Cecilia remembered how to swim*) and with prospective *to*-infinitives (as in *Cecilia remembered to swim*). However, since these constructions are not licensed by episodic uses of *remember* and *imagine*, I exclude them from my discussion.



The ability of *remember* and *imagine* to embed constructions with the silent pronoun PRO (see (4a)) suggests that these predicates can function as subject control verbs. Since the latter are obligatorily interpreted *de se* (i.e. as self-ascribed or self-locating properties; see Lewis, 1979; Chierchia, 1989), *remember*- and *imagine*-reports contain a linguistic counterpart of the sense of self in episodic memory (see Conway, 2005; Rathbone et al., 2011; Tulving, 2005).

The list of grammatical constructions in (4) suggests that the verbs *remember* and *imagine* have exactly the same embedding behavior. This suggestion is challenged by the observation that *whether*-clauses are more common in the embedded position of *remember* than of *imagine* (see the quantitative results in White, 2021). Regardless of this finding, *imagine* also accepts *whether*-clauses (see (4f)). Attested examples of *imagine whether*-constructions are given in (5).

- (5) a. I am imagining whether the new sofa will fit into my living room. (Arcangeli, 2017, p. 2)
- b. I am imagining whether aliens could invade Ulm. (Özyildiz, 2022, p. 28)
- c. Anna was trying to imagine whether the lid would fit the kettle. (German version in Sode, 2022, p. 1: ex. (2a))

Importantly, *remember* and *imagine* are not only similar with respect to which grammatical constructions they embed. They are also similar in admitting a vast range of different constructions, i.e. they are selectionally super-flexible (Liefke, 2021). Selectional flexibility is typically understood as a predicate’s ability to accept both *that*-clauses (e.g. (6a)), *whether*-clauses (6b) and ‘constituent’-interrogative clauses (6c) as well as abstract objects with propositional content (6d) (see Theiler et al., 2019, who attribute selectional flexibility to so-called ‘responsive predicates’ like *know*).

- (6) Cecilia knows  $\left\{ \begin{array}{l} \text{a. that} \\ \text{b. whether} \\ \text{c. where} \\ \text{d. Pythagoras' Theorem.} \end{array} \right\}$  a spider webbed.

*Remember* and *imagine* differ from responsive predicates in accepting many more – and more diverse – (viz. 12, instead of only 4) different grammatical constructions.

### 3.2 Modificational similarities

Besides the above, the English verbs *remember* and *imagine* can be further specified by the same kinds of expressions. These include experiential modifiers like *vividly* or *in vivid/perfect detail* (see (7)), which are commonly associated with rich mental imagery and experience-likeness (Stephenson, 2010). The phenomenological similarity between episodic memory and imagination is thus directly reflected in the modification behavior of the verbs for these mental states.

- (7) a. Cecilia **vividly** {i. remembers, ii. imagines} a spider webbing in her office.  
b. Cecilia {i. remembers, ii. imagines} **in perfect detail** how a spider was/is webbing in her office.

Admittedly, the adverb *vividly* can also be used to modify *remember* and *imagine that* (see (8)). This is explained by my assumption that *that*-clause memory reports are ambiguous between a propositional and an episodic interpretation (see Sect. 2.2). The modification of *remember (that)* with *vividly* is then only possible on the verb’s episodic use. The disambiguation in favor of the episodic use is supported by the observation that *vividly remember that* rejects complements that force a propositional interpretation (evidenced by the ungrammaticality, #, of the report in (9)).

- (8) Cecilia **vividly** {i. remembers, ii. imagines} *that* a spider was/is webbing in her office.  
(9) #Cecilia **vividly** {i. remembers, ii. imagines} *that* the spider from her office was/is a black house spider.

Importantly, *remember* and *imagine* are not only alike with respect to experiential modification. They also both allow for the explicit expression of perspective (Vendler, 1979; D’Ambrosio and Stoljar, 2023). This expression can proceed through a viewpoint adjunct (e.g. *from the perspective/point of view of ...*, see (10a)) or through a locative modifier (e.g. *from below*). It can even include ‘shifted’ perspectives (expressed by (10b)),

in which an event is (re-)experienced from a perspective that is different from the original perspective (see e.g. McCarroll, 2018; Nigro and Neisser, 1983; Rice and Rubin, 2009). The latter is a perspective whose source, i.e. the viewpoint, is either unoccupied or is distinct from the subject of the (original) experience.

- (10) a. Cecilia {i. remembers, ii. imagines} a spider webbing *from her original on-looker's perspective (viz. Cecilia/herself herself sitting at her desk)*.
- b. Cecilia {i. visualizes, ii. imagines} a spider webbing *from below / from the visual perspective of a fly on the ceiling / from the spider's own perspective / from the (emotional) point of view of an arachnophobiac*.

A glance at (10b) already suggests that ‘shifted perspective’-memories are typically not reported through the use of the verb *remember* or its cognates. Instead, they are more naturally ascribed through the verb *imagine* or through the predicate *visualize*, *(mentally) simulate*, or *form a mental image of*.<sup>8</sup> I take this observation as further support for the continuist treatment of episodic remembering as a special instance of experiential imagining.

## 4 Truth-Conditional Similarities

A continuist treatment of remembering and imagining is also supported by the observation that the reports from (1a-i/ii) (copied in (11) below) are true in some of the same evaluative circumstances. These include circumstances in which the content of Cecilia’s (mnemically or imagistically) constructed<sup>9</sup> scenario is part of Cecilia’s original experience (see Sect. 4.3). They further include circumstances in which the content of Cecilia’s scenario goes beyond what Cecilia has originally experienced (see Sect. 4.1) and in which Cecilia’s scenario content *contradicts* the content of her original experience (see Sect. 4.2).

The above descriptions already suggest that, as used in the present Section, imagination is a second-order attitude. The latter is a mental state whose content depends on

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<sup>8</sup>This is the result of an informal inquiry of seven native speakers of American English.

<sup>9</sup>To allow that (1a-i) and (1a-ii) are true in the same circumstance, I provide a general description of evaluative circumstances in terms of ‘constructing scenarios’ (rather than ‘remembering’ or ‘imagining’).

the objects of an another, underlying, experience (in Sect. 4.1–4.2: on the spider from Cecilia’s veridical visual perception; see Blumberg, 2019, pp. 95–99). In contrast to the objects of second-order imagination, the objects of first-order imagination (which will be exploited in CIRCUMSTANCE F) are only created in the act of imagining.

To enable a direct comparison of the truth-conditional contribution of the verbs *remember* and *imagine*, I will use minimal *remember/imagine*-pairs. The latter are pairs of memory and imagination reports like (1a-i/ii) (copied in (11-i/ii) below) that only differ with respect to the matrix verb, viz. *remember* resp. *imagine*. The subject of these reports (here: *Cecilia*) and the embedded clause (in most cases: *a spider webbing in her office*) are the same in both sentences from this pair.

## 4.1 Generativity

The evaluative circumstances below all treat episodic remembering as a constructive simulation process that yields an informationally (or imagistically) rich, experience-like, and perspectival scenario (see e.g. Addis, 2018; Cheng et al., 2016). This treatment is reflected in the specific description of CIRCUMSTANCE A (see (12); illustrated in Fig. 3). In this circumstance, Cecilia is constructing a scenario in which the spider whom she has seen in her office is webbing.

(11) Cecilia {i. remembers, ii. imagines} a spider webbing in her office.

(12) CIRCUMSTANCE A: Cecilia is constructing a scenario in which the spider whom she has seen in her office is webbing.

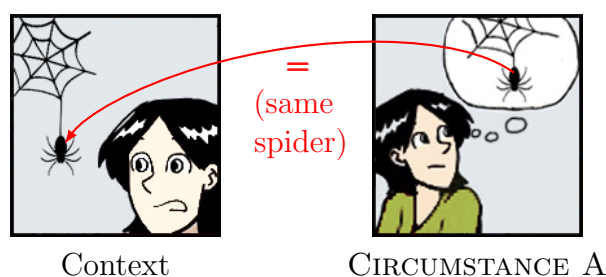


Figure 3: CIRCUMSTANCE A and its context.

Note that CIRCUMSTANCE A does not presume that the spider was webbing in Cecilia’s original experience. Rather, it is compatible with the assumption that Cecilia’s experience

does not contain an information about the spider’s webbing (s.t. the spider was neither webbing nor not webbing in Cecilia’s experience). This is made possible by the partiality of perception, by which an agent typically only perceives a small part of their environment (due to lack of attention, to other attentional foci, to the agent’s perceptual sensitivity, and to other conditions of perception; see e.g. Martina, 2021). In these cases, the spider’s webbing is a product of the generative process of constructive episodic simulation (see Schacter and Addis, 2007; Addis, 2018). During this process, information about the spider (here: its webbing) is supplemented from general world knowledge, or as episodic information from other experiences. The fact that CIRCUMSTANCE A makes both (11-i) and (11-ii) true supports the constructive, or generative nature of episodic remembering and imagining.

## 4.2 Non-factuality

The generativity of episodic remembering and imagining even goes beyond the supplementation of experientially underdetermined information (i.e. information that is neither true nor false in the original experience): It allows for the attribution of seemingly contradictory information (in CIRCUMSTANCE B: the contradictory propositions from (14)). Such attribution is supported by the observation that (11-i) and (11-ii) are intuitively both true in a circumstance in which Cecilia is constructing a scenario in which the spider from her office has a property (viz. webbing) which it did not have in Cecilia’s original experience (or in its underlying real-world event).

- (13) CIRCUMSTANCE B: Cecilia is constructing a scenario in which the spider who was not webbing in her office is webbing.
- (14) a. The spider from Cecilia’s office is webbing. (memory)  
b. The spider from Cecilia’s office is not webbing. (experience)

At a neural level, the attribution of seemingly contradictory information is made possible by the assumption of sparse or empty memory traces (see e.g. De Brigard, 2011; Fayyaz et al., 2022; Werning, 2020). Since such traces contain little or no representational content, there is nothing about them that could serve as a restrictor on the supplemented

semantic information. In particular, if Cecilia’s memory trace from the context in Figure 3 does not contain the representational information in (14b), it is still compatible with the information in (14a).

The compatibility of (14b) and (14a) is supported by Hazlett’s (2010) observation that sentences of the form ‘*a* remembers *p*, but not-*p*’ (see (15))<sup>10</sup> are not contradictory, but at worst incoherent (analogously to Moore’s (1959) *It is raining outside, but I don’t believe it*). Confirming this intuition, De Brigard (2023) states, “it is not impossible to think of a competent user who could rationally and truthfully utter a sentence such as [(15)]” (p. 15). A (11-i)-specific analogue of this sentence is given in (16):

(15) I remember I was drinking tequila, but I was not drinking tequila.

(16) Cecilia remembers a spider webbing in her office, but the spider was not webbing.

At a more general linguistic level, the truth of (11-i) in circumstances like B is supported by the possibility of reporting false memories through the use of the verb *remember* and its cognates (see e.g. Hazlett, 2010; Werning and Liefke, accepted). This is reflected in De Brigard’s (2023) observation that “competent users of the verb *to remember* often don’t abide by [the factivity constraint]” (p. 16). The possibility of using *remember* to report false memories is supported by recent experiments that study speakers’ willingness to classify a specific instance of scenario construction as a case of remembering (viz. Dranseika, 2020). These experiments have found that “the ordinary use of [the Lithuanian counterpart of] the predicates *remember* and *having a memory of* is not bound by [...] the factivity constraint” (p. 177).

Importantly, the non-factivity of the verb *remember* is not restricted to the ability to attribute incoherent properties (as in (13)/(16)). It is also reflected in the possibility that the remembered contents may lack existential import (s.t. the individual object in the mnemonic scenario does not actually exist; see Forbes, 2020). The latter is the case in memories from hallucinations and from dreams (see (17) and Fig. 4; cf. Michaelian, 2023; Werning and Liefke, accepted). Since the individual referents of these memories (in (17): the spider from Cecilia’s dream) do not exist in the real world, the inference to (17b) is

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<sup>10</sup>This is a stronger version of Moore’s paradox that assumes that *p* has existential import. The latter will be discussed in the context of (17).

intuitively invalid.

- (17) *Context*: Last night, Cecilia dreamt a spider was moving about in her office.
- a. (Now,) Cecilia remembers a/the spider webbing in her office.
- ≠ b. There exist a (past) real-world spider whom Cecilia remembers webbing in her office.

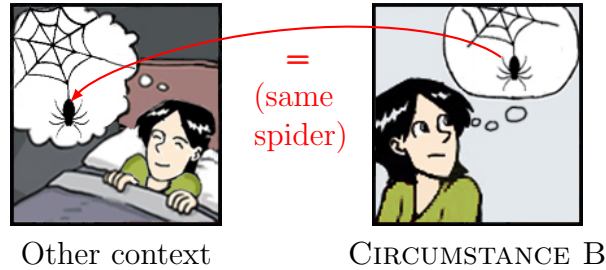


Figure 4: CIRCUMSTANCE B and its alternative context.

The above shows that – like its imagination-counterpart – the memory report in (1a-i) does not require that an actual spider was in fact webbing in Cecilia’s office. In virtue of this finding, the verbs *remember* and *imagine* share the same non-factive behavior.

### 4.3 Veridicality

The observed non-factivity of *remember* would lead one to suspect that the memory and imagination reports from (1a) would also both be true in circumstances like CIRCUMSTANCE C below, in which the content of Cecilia’s constructed scenario is part of her original experience. The latter is indeed the case. This holds despite the strong intuition that the imagination report in (1a-ii) is infelicitous, deviant, or (at least) odd in CIRCUMSTANCE C. To capture this deviance, I mark the *imagine*-variant of (1a) with a single superscript question mark in (18). The deviance of (18-ii) captures the counterfactuality of episodic imagination (see e.g. Arcangeli, 2021; Langland-Hassan, 2021; Mahr, 2020).

- (18) Cecilia {i. ✓remembers, ii. ?imagines} a spider webbing in her office.
- (19) CIRCUMSTANCE C: Cecilia is constructing a scenario in which the spider who was webbing in her office is webbing.

The above notwithstanding, the deviance of (18-ii) can still be explained through the pragmatic competition of the verbs *remember* and *imagine*: Obviously, if *remember* and *imagine* were to contribute exactly the same meaning (in a wide sense that also includes use-conditional meaning) to the sentences in which they occur, it would be very surprising to find different predicates for remembering and imagining in language after language.

To explain the intuitive difference in felicity between (18-i) and (18-ii) without postulating a difference in the truth-conditional contribution of *remember* and *imagine*, I assume that these two verbs form a two-value Horn scale (Horn, 1972) that is ordered with respect to ‘factivity-inclination’ (see also Sect. 5.1). Since *remember* is the stronger element on this scale – s.t. it is ‘more’ factive (in a sense specified below) than *imagine* –, a speaker’s use of the verb *imagine* triggers a pragmatic inference to *not remember*. This inference is based on Grice’s (1975) maxim of QUANTITY. The latter demands that the speaker in a conversation “make[s their] contribution as informative as is required (for the current purposes of the exchange)” (p. 45). Specifically, since the hearer (typically) assumes that the speaker obeys Grice’s maxims, they will interpret the speaker’s utterance of (18-ii) as (21). (Rationale: if (18-i) were true, – given the speaker’s commitment to QUANTITY – the speaker would have explicitly said so.) The falsity of (21) then explains the impression of deviance of (18-ii).

(20) remember > imagine

(21) Cecilia does not remember a spider webbing in her office.

Because pragmatic factors are typically excluded from an expression’s conventional, context-independent meaning (with which the investigation from this paper is concerned), I do not count (18-i) and (18-ii)’s different behavior with respect to CIRCUMSTANCE C as indicative of a difference in meaning.

A summary of the truth-conditional similarities of (1a-i) and (1a-ii) is given in Table 1. In the table, ‘**T**’ indicates that the report is true in the specified circumstance of evaluation. ‘(**T**)’ marks cases whose intuitive truth-value judgement is influenced by pragmatic factors.



	<i>imagine</i> , (1a-ii)	<i>remember</i> , (1a-i)
A. Generativity:	<b>T</b>	<b>T</b>
B. Non-factuality:	<b>T</b>	<b>T</b>
C. Veridicality:	<b>T</b>	<b>(T)</b>

Table 1: Shared truth-values of the reports in (1a).

Table 1 establishes both episodic remembering and imagining as non-veridical constructive simulation processes.

This completes my discussion of the truth-conditional similarities between the English verbs *remember* and *imagine*. I next turn to the truth-conditional differences between these verbs. The reader will see that, while *remember* has a different truth-contributational pattern from *imagine*, it still allows for a continuist account of episodic remembering. On this account, remembering is past-directed, referential, and accurate imagining (see Sect. 6).

## 5 Truth-Conditional Differences

My description of episodic remembering as a relation to a personally experienced past event (see Sect. 2.2) already suggests that the verbs *remember* and *imagine* are subject to substantial truth-conditional differences. These differences show in circumstances in which the content of Cecilia’s (mnemically or imagistically) constructed scenario is not past-directed (see Sect. 5.2) or is vastly inaccurate with respect to Cecilia’s original experience (see Sect. 5.1). They also show in circumstances in which Cecilia’s constructed scenario does not feature the object of any previous experience (see Sect. 5.3) or combines the objects of different experiences (see Sect. 5.4).

My argument that these truth-conditional differences reflect a difference in the (conventional, context-independent) meaning of the verbs *remember* and *imagine* – and hence, in the acts of episodic remembering and imagining – is based on Cresswell’s (1982) ‘Most Certain Principle’. This principle asserts that “if [for] two [declarative] sentences *A* and *B*, [...] *A* is true and *B* is false [in the same circumstance], then *A* and *B* do not mean the same” (Cresswell, 1982, p. 69; inserted material from Zimmermann and Sternefeld, 2013, p. 28).

The Most Certain Principle suggests that one can tease apart the meanings of *remember* and *imagine* by investigating the truth-conditions of some carefully chosen memory and imagination reports. Specifically, according to the Most Certain Principle, identifying a semantic difference between *remember* and *imagine* amounts to finding a circumstance of evaluation that makes a certain episodic imagination report (e.g. (1a-ii)) true, but a maximally similar memory report (with the same subject and embedded clause; here: (1a-i)) false, or vice versa. Since continuism claims that remembering is just a particular kind of imagining, this position is compatible with circumstances of evaluation that make a certain imagination report true, but a maximally similar memory report false or deviant. Arguing against continuism would require finding at least one circumstance that would make a certain memory report true and a maximally similar imagination report false (or deviant).

I will argue below that, since my representative choice of evaluative circumstances does not include a circumstance of the latter sort, it supports continuism. The representativity of these circumstances is ensured the fact that they cover a wide range of possible parameters, viz. diachronicity (past/non-past), specificity (no/yes), experiential grounding (no/yes: single, multiple), and generativity (no/yes: weak, strong). As a result, the circumstances below include past- (A–D, F, G) and future-directed circumstances (E) with unspecific/arbitrary (F), single experience-based (A–E), and multiple experiences-based (G) individual objects whose properties match (C), contradict (B), or add to the content of Cecilia’s original experience (A).

## 5.1 Severe inaccuracy

Much contemporary work in the philosophy of memory addresses the success-conditions of episodic remembering. While this work has proposed various candidates for these conditions, most researchers agree that successful remembering requires some degree of accuracy. Admittedly, accuracy does not demand a perfect representation of (some part of) the original(ly) experience(d event). Rather, it only requires that the remembered content is “sufficiently similar” to the content of the original experience (Bernecker, 2010) or that the remembered content is “true-in-large-part” of this experience (Perrin and McCarroll,

2024, p. 15). However, accuracy excludes from successful remembering scenarios whose content is wildly different from the content of the original experience.

The deviance of the *remember*-report (1a-i)/(22-i) in CIRCUMSTANCE D supports this intuition. In this circumstance, Cecilia is constructing a scenario in which the spider from her office is wearing a sombrero (see (23)). This circumstance is illustrated in Figure 5.

(22) Cecilia {i. <sup>??</sup>remembers, ii. ✓imagines} a spider webbing in her office.

(23) CIRCUMSTANCE D: Cecilia is constructing a scenario in which the spider who was webbing in her office is wearing a sombrero.

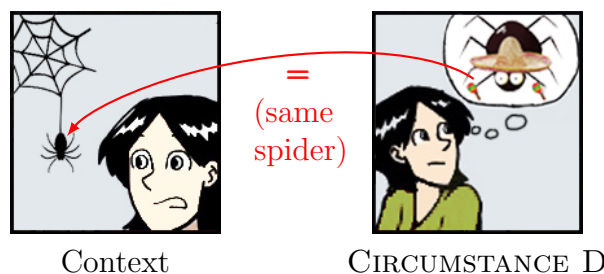


Figure 5: CIRCUMSTANCE D and its context.

Arguably, assuming that *imagine* has a second-order use in (1a-ii)/(22-ii) (s.t. *a spider* is interpreted relative to an underlying experience; see Sect. 4) – and granted the counterfactualty [or ‘lower factivity’] of *imagine* (see Sect. 4.3) –, the imagination report (22-ii) is intuitively true in CIRCUMSTANCE D (as indicated by the checkmark in (22-ii)). In particular, since, in imagination, we can attribute familiar objects any non-actual properties, there is nothing strange about the spider from Cecilia’s office wearing a sombrero in Cecilia’s imagination. The report + circumstance-pair (1a-ii)/D is thus reminiscent of the example in (24) from (Ninan, 2012, p. 5:18).

(24) Ralph is imagining that the man whom he saw sneaking around on the waterfront last night is flying a kite in an alpine meadow.

In contrast to the imagination report (1a-ii), the memory report (1a-i) is not intuitively true in CIRCUMSTANCE D. This holds despite the generativity of episodic memory (see Sect. 4.1) – possibly because spiders wearing a sombrero is neither a part of general world

knowledge nor of stereotypical episode information. This consideration explains why (1a-i) is at best deviant, if not straightforwardly false, in CIRCUMSTANCE D. This is reflected in the double question mark in front of the copy of (1a-i) in (22-i).

## 5.2 Non-past-directedness

My previous elaborations have described memory as past-directed (see the use of past tense *was* in (2a-i) and (4-e-i)). That past-directedness is a hard condition on episodic remembering (as assumed in, e.g., Cheng et al., 2016; Tulving, 1972; Michaelian, 2022) is shown by the deviance of (a variant of) the *remember*-report (1a-i) in CIRCUMSTANCE E below. The latter is a circumstance in which the content of Cecilia’s remembering/imagining is not past-, but future-directed (see (25)).

- (25) CIRCUMSTANCE E: Cecilia is constructing a future scenario in which the spider whom she has seen in her office is webbing.

To ensure that at least one of the target reports (i.e. (1a-i) or (1-ii)) is true in this circumstance, I replace the tenseless (and thus, past-directed)<sup>11</sup> clause *a spider webbing* by the future-tensed clause *a spider will be webbing*. To allow for the overt expression of future tense, I replace the (non-finite, untensed) gerundive small clause from (1a) by a (finite, tensed) non-manner *how*-clause in (26) (see Liefke, 2023b). Since gerundive small clauses and non-manner *how*-clauses both denote events (see Umbach et al., 2022), this replacement is otherwise meaning-preserving.

- (26) Cecilia {i. ?? remembered, ii. ✓ imagined} how a spider will be webbing in her office.

The truth of the *imagination*-report (26-ii) in CIRCUMSTANCE E reflects the fact that – in contrast to episodic remembering – imagining is not restricted to past-directed contents.

## 5.3 No referential dependence

Apart from their contents’ past-directedness, episodic memory and imagination reports also differ in their demand for an underlying experience, e.g. a perception (see (12), Fig. 3)

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<sup>11</sup>This is so since, in English, tenseless embedded clauses have a simultaneous and a back-shifted interpretation (see Ogihara, 1989; Abusch, 1997; who have discussed this phenomenon as ‘Sequence of Tense’).

or a hallucination or dream (see (17), Fig. 4). This is apparent in CIRCUMSTANCE F (see (28); illustrated in Fig. 6). In this circumstance, Cecilia is constructing a scenario in which some spider or other – no one in particular, whom she has come across in real life – is webbing in her office. The spider that features as the salient object in Cecilia’s constructed scenario is thus an unspecific or arbitrary object in this circumstance (along the lines of Fine, 1986; Fodor, 1970; Forbes, 2006; Zimmermann, 2016).

(27) Cecilia {i. <sup>??</sup>remembers, ii. <sup>✓</sup>imagines} a spider webbing in her office.

(28) CIRCUMSTANCE F: Cecilia is constructing a scenario in which some (arbitrary) spider – no one in particular – is/was webbing in her office.

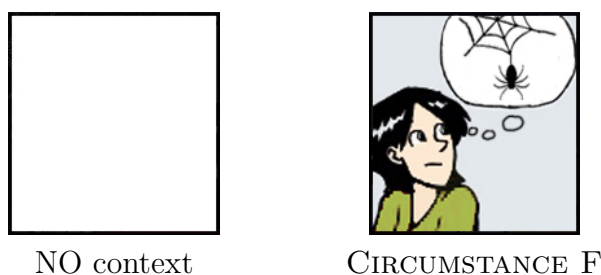


Figure 6: CIRCUMSTANCE F.

While the imagination report (1a-ii)/(27-ii) is intuitively true in CIRCUMSTANCE F, its *remember*-counterpart, i.e. (1a-i), is deviant or false in this circumstance (see the double superscript question marks in (27-i)). The deviance of the memory report (1a-i)/(27-i) in circumstances like F – which do not assume an underlying experience at which the referent of *a spider* could be fixed – suggests that episodic memory is a second-order (or ‘parasitic’) attitude (see Maier, 2015; Blumberg, 2018; see my introduction to Sect. 4). The latter is a mental state whose content depends, for its reference, on an underlying experience (in CIRCUMSTANCES A–G: on the spider from Cecilia’s perception or dreaming). Examples of such dependence are given in (24) (due to Ninan, 2012) and (29) (due to Blumberg, 2019, p. 97):

(29) Last night John dreamed that he was being threatened by a woman. Now John is imagining that the woman who threatened him is swimming in the sea.

The second-order nature of episodic remembering is reflected in Tulving’s (1989) definition of episodic remembering as recall of a “personally experienced [e.g. visually perceived] past

event” (p. 4). A referential dependence of this sort is not required by episodic imagination, as indicated by the intuition that (1a-ii)/(27-ii) is true in CIRCUMSTANCE F. In contrast to episodic memory, imagination thus allows that all of its objects are only created in the act of imagining.

The second-order nature of episodic remembering is also supported by the particular truth-conditions of *remember*-reports: Unlike the imagination report (1a-ii), some episodic memory reports lack both *de re*- and *de dicto*-truth-conditions. The former are truth-conditions that relate the attitudinal agent to a particular object (Latin: *res*). The latter are truth-conditions that relate the agent to a propositional content (or *dictum*). In the relevant cases, the truth-conditions of these reports require that the propositional content is referentially dependent (or ‘parasitic’) on another attitude or experience.<sup>12</sup> An example of such report is given in (30), which uses the dream-version (see (17)) of CIRCUMSTANCE B.

- (30) *Context*: Last night, Cecilia dreamt of a spider sitting still in its web [= not webbing].
- a. (Now,) Cecilia remembers a spider webbing.
    - i. There exists a particular real-world spider whom Cecilia (*de re*) remembers webbing.
    - ii. Cecilia is mnemically constructing a scenario in which (*de dicto*) a spider is simultaneously webbing and not webbing.
    - iii. Cecilia is mnemically constructing a scenario (*de credito/de hospite*) in which the spider from her dream is webbing.

The parasitic truth-conditions of (30a) are supported by the observation that – given the context in (30) – (30a) is false on its *de re*-interpretation (which gives the indefinite *a spider* a specific interpretation; see (30a-i)) and is contradictory on its *de dicto*-interpretation (see (30a-ii)). The parasitic interpretation of (30a) (as (30a-iii)) is then prompted by the finding that (30a) has plausible truth-conditions on an interpretation that fixes the referent of *a spider* at another attitude or experience (here: Cecilia’s dream last night).

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<sup>12</sup>Yanovich (2011) has called such truth-conditions *de credito*. In (Werning and Liefke, accepted), they are called *de hospite*.

## 5.4 Multiple referential dependence

Remarkably, while memory reports like (1a-i) require an underlying experience such as a perception or a dream, they seem to resist the referential dependence on multiple different experiences. An example of such ‘multi-dependence’ is given in CIRCUMSTANCE G (see (31); illustrated in Fig. 7). In this circumstance, Cecilia is constructing a scenario in which the spider whom she has seen in her office is webbing the monster of which she dreamt last night.

- (31) CIRCUMSTANCE G: Cecilia is constructing a scenario in which the spider whom she has seen is webbing the monster of which she dreamt.

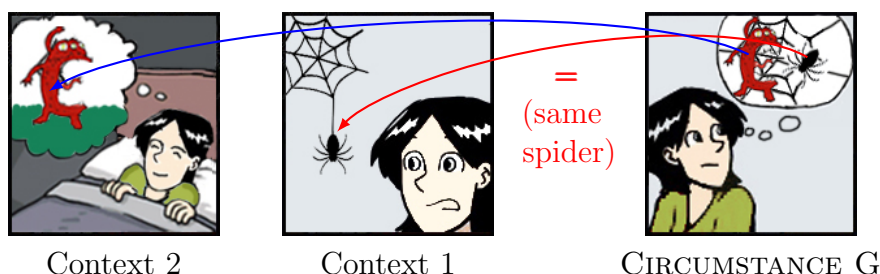


Figure 7: CIRCUMSTANCE G and its contexts.

The above circumstance is reminiscent of Blumberg’s (2019, p. 99) ‘arbitrary sequence’-case:

- (32) John thinks that a mathematician dented his car, and yesterday he imagined that a woman kicked him. Now he’s dreaming that the mathematician who dented his car is dancing with the woman who kicked him.

To ensure that at least one of our target sentences is true in CIRCUMSTANCE G, I change the memory and imagination reports from (1a) to the reports in (33). The latter differ from (1a-i/ii) in containing an extra, viz. indirect, object *a monster*, such that the verb *web* has a transitive use in (33) (but an intransitive use [with only a single, direct object] in (1a)).

- (33) Cecilia {i. <sup>?</sup>remembers, ii. <sup>✓</sup>imagines} a spider webbing a monster in her office.

As the counterfactuality of imagination would lead one to expect, the *imagine*-report (33-ii) is intuitively true in CIRCUMSTANCE G. This is not straightforwardly so for its memory

counterpart (33-i) however. In particular, (33-i) is deviant in high-stake contexts like a legal inquiry, in which much depends on the rememberer’s accurate representation of the originally experienced episode (here: Cecilia’s perceived visual scene in her office).

Importantly, the above is not to say that (33-i) can never be true in ‘multi-source’ circumstances like G. This holds especially in light of the constructive nature of episodic memory (see Sect. 4.1) and the attendant possibility of supplementing original episode (or experience) content with further information – including information about specific and arbitrary objects.<sup>13</sup> Since low-stake contexts (e.g. chatting with a close friend) even allow for the supplementation of information from other episodes (see e.g. Aronowitz, 2023), they are in principle compatible with multi-source memory. When the monster in (33-i)/CIRCUMSTANCE G is regarded as an ‘admissible’ individual in Cecilia’s constructed mnemonic scenario, this is due to the high tolerance for generativity in low-stake contexts. My use of only a single superscript question mark on (33-i) is a consequence of this observation.

This completes my survey of the truth-conditional differences between memory and imagination reports. Below, I use the truth-conditional behavior of these reports to argue for a continuist position about episodic remembering and imagining.

## 6 Towards a Continuist Account

I have suggested in the introduction to this paper that the truth-contributorial differences between episodic uses of *remember* and *imagine* do not stand in the way of a continuist account of episodic remembering. This account is also supported by the striking distributional similarities between the verbs *remember* and *imagine*, which I have detailed in Section 3. Following a contrasting summary of the truth-conditional behavior of these two verbs – and an inference to the additional requirements on episodic remembering *vis-à-vis* imagining – (in Sect. 6.1), I will give a continuist account of episodic remembering as past-directed, referential, and (largely) accurate imagining (in Sect. 6.2).

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<sup>13</sup>I thank John Sutton for raising my attention to this point.



## 6.1 Truth-conditional behavior: Summary

We have already seen (at the end of Section 4) that the memory and imagination reports (1a-i) and (1a-ii) are true in some of the same evaluative circumstances (see A–C in Table 2, below). While this sharing of truthmarkers points to a similarity in the (conventional, context-independent) meaning of *remember* and *imagine*, their divergence with respect to other truthmaking circumstances suggests that this similarity is not a fully-fledged semantic identity (by Cresswell’s Most Certain Principle; see the introduction to Sect. 5). Of course, since most languages have distinct predicates for remembering and imagining, this is not surprising.<sup>14</sup>

The previous section has identified four different kinds of circumstances that distinguish the meanings of *remember* and *imagine*. These include circumstances in which the content of the constructed scenario is not past-directed (E), in which the scenario is severely inaccurate with respect to the original episode or experience (D), in which the scenario does not depend, for its referent, on the content of another experience (F), and in which the scenario depends, for its referents, on multiple different experiences (G).

	<i>imagine</i> , (1a-ii)	<i>remember</i> , (1a-i)
A. Generativity:	<b>T</b>	<b>T</b>
B. Non-factuality:	<b>T</b>	<b>T</b>
C. Veridicality:	<b>T</b>	( <b>T</b> )
D. Severe inaccuracy:	<b>T</b>	??
E. Non-past-directedness:	<b>T</b>	??
F. No referential dependence:	<b>T</b>	??
G. Multiple ref’l dependence:	<b>T</b>	?

Table 2: Diverging truth-values of the reports in (1a).

The truth-values of (relevant adaptations of) the reports (1a-i) and (1a-ii) in these different circumstances are summarized in Table 2. There, ‘**T**’ indicates that the respective report is true in the specified circumstance of evaluation. Double question marks indicate cases in which the report’s truth-value is debated or cannot be determined (e.g. due to presupposition failure). A single question mark indicates cases in which the report’s truth

<sup>14</sup>This holds especially if we assume a parsimony pressure on language evolution, which limits the emergence/preservation of words that have exactly the same (semantic, pragmatic, and subjective) meaning.

depends on further, non-linguistic assumptions (e.g. low-stake contexts, which allow for strong generativity).

Remarkably, CIRCUMSTANCES D–G all make (a version of) the imagination report (1a-ii) true. The deviance of (an analogous version of) the memory report (1a-i) in these circumstances suggests that *remember*-reports have stricter truth-conditions – and hence, a more specific convention, context-independent meaning – than *imagination*-reports. This is in line with the continuist claim that episodic remembering is a special kind of imagining that only differs from imagining in its temporal orientation (viz. past) and in degree (see e.g. Addis, 2020; Michaelian, 2016; Munro, 2021; Langland-Hassan, 2021).

## 6.2 A continuist account of episodic remembering

The distributional and truth-conditional properties from Sections 3 to 5 suggest that episodic remembering and imagining share a common set of necessary conditions, but that these conditions are not by themselves jointly sufficient for episodic remembering. I detail these conditions below, starting with the necessary and jointly sufficient conditions for episodic imagining:

### Necessary and jointly sufficient conditions for episodic imagining. (I.1)–(I.3)

below specify the conditions for the truth of an episodic attitude report of the form ‘*a remembers/imagines p*’, where *a* is a proxy cognitive agent and *p* (for ‘proposition’) is a representational content:

- (I.1) *a* constructs a scenario,  $\sigma$ , in which *p* is true; (episodicity)
- (I.2)  $\sigma$  is perspectival/encodes a particular perspective; (perspectivity)
- (I.3)  $\sigma$  is informationally richer than (i.e. semantically includes) *p*. (generativity)

Conditions (I.1) and (I.2)/(I.3) are supported by the selectional and, respectively, by the modificational similarities of the verbs *remember* and *imagine* (see Sect. 3.1, 3.2). This holds especially since the vast majority<sup>15</sup> of linguistic constructions that can be embed-

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<sup>15</sup>The only exception are *whether*- and *that*-clauses like (4f)/(4g) (which can also be embedded by propositional/semantic uses of *remember* and *imagine*; see Liefke, 2023a) and concrete direct objects like (4k) (which can also be embedded by transitive uses of *remember* and *imagine*; see D’Ambrosio and Stoljar, 2021).

ded under these verbs (i.e. (4)) are interpreted as events or ‘scenarios’ (see e.g. Barwise, 1981; Grimm and McNally, 2015, 2022; Higginbotham, 2003). The perspectival nature of scenarios (see (I.2)) is supported by the possibility of specifying the scenario’s perspective through a viewpoint adjunct or locative modifier (see (10)). Scenario generativity (see (I.3)) is supported by the possibility of emphasizing rich scenario content through an experiential modifier like *vividly* (see (7)) and by (1a-i/ii)’s truth in circumstances (e.g. CIRCUMSTANCE A) that involve partly novel [= non-experience-based] scenario content.

At a more general level, Condition (I.1) is supported by the (1a-i/ii)’s truth in all of CIRCUMSTANCES A–C, which share the assumption that Cecilia is constructing a scenario in which certain things are the case. Conditions (I.1)–(I.3) roughly correspond to Stephenson’s (2010, p. 153) conditions for vivid uses of *imagine* (see also Higginbotham, 2003). Note that the above conditions for episodic imagining include neither non-factuality (see Sect. 4.2; CIRCUMSTANCE B) nor veridicality (see Sect. 4.3; CIRCUMSTANCE C). This is so since non-factuality and veridicality express possibilities for – rather than constraints on – the truthmaking circumstances of episodic attitude reports.

The stricter truth-conditions of memory reports (*vis-à-vis* imagination reports) already suggest that episodic remembering is subject to further, jointly stricter, conditions. The latter are given below:

**Further necessary conditions for episodic remembering.** When combined with (I.1)–(I.3), the conditions below are jointly sufficient for the truth of a memory report of the form ‘*a remembers p*’. In (M.1)–(M.2),  $\text{CONT}(\sigma)$  (which properly includes *p*) is the propositional representational content of  $\sigma$  (following Kratzer, 2006).

- (M.1)  $\sigma$  is a scenario of the past (hence,  $\text{CONT}(\sigma)$  is past-directed); (past-directedness)
- (M.2) much of  $\text{CONT}(\sigma)$  is true of the original (episode/) experience; (accuracy)
- (M.3)  $\text{CONT}(\sigma)$  is referentially dependent on at least one experience; (parasitism)
- (M.4) *a* presumes that  $\text{CONT}(\sigma)$  is true of a single experience. (singular anchoring)

Conditions (M.1) and (M.2) are supported by the observation that only the imagination, but not the memory report from (1a) is true in CIRCUMSTANCE E (where the scenario content is future-directed) respectively in CIRCUMSTANCE D (where the scenario content

is grossly inaccurate w.r.t. the original experience). Condition (M.3) is supported by the observation that episodic memory reports cannot be true in circumstances (e.g. CIRCUMSTANCE F) where the constructed scenario is referentially independent of any other experience. Condition (M.4) is motivated by the intuition that, in high-stake contexts that only allow for minimal generativity, memory reports are not true in circumstances (like CIRCUMSTANCE G) that involve multiple underlying experiences (see Sect. 5.4). Condition (M.1) and a stronger version of Condition (M.2) (which demands that all of  $\text{CONT}(\sigma)$  is true of the original episode) correspond to Stephenson’s (2010, p.153) conditions for vivid uses of *remember*.

In view of the above, episodic remembering is past-directed (M.1), singularly parasitic (M.3/4), and largely accurate (M.2) imagining (I.1/2/3). This is in line with continuism.

## 7 Conclusion

In the present paper, I have argued that the distributional and truth-conditional behavior of the English verbs *remember* and *imagine* provides support for the continuist claim that episodic remembering is a form of imaginative mental time travel. This argument has rested on the observation that *remember* and *imagine* select for – and can be modified by – the same kinds of expressions (see Sect. 3) and that *remember*- and *imagine*-reports are true in some of the same evaluative circumstances (see Sect. 4). The conclusion that episodic remembering is a special kind of imagining rests on the observation that memory reports are deviant in some circumstances that make their imagination counterparts true (see Sect. 5). Episodic memory reports thus have more demanding truth-conditions than imagination reports (see Sect. 6).

One could try to question the argument from this paper by pointing out that the intuitions concerning truth (resp. deviance) from Sections 4 and 5 are based solely on my (and a few colleagues’) intuitions, and are not supported by robust experimental data (e.g. from a suitably powered truth-value judgement study). I would like to point out that such data is indeed forthcoming (see [work-in-progress from the author’s research group]). However, most of these intuitions are already supported by various existing work. This holds, e.g., for the non-factive behavior of *remember* (which is supported by

Dranseika, 2020; De Brigard, 2023; de Marneffe et al., 2019), for the accuracy requirement on remembering (which is supported by the linguistic data from Dranseika et al., 2021; Stephenson, 2010), and for the remembered contents' referential dependence on an underlying experience (which is supported by the findings in Stephenson, 2010; Liefke and Werning, 2023; Werning and Liefke, accepted).

I conclude this paper with an observation about the conditions on the truth of memory and imagination reports from Section 6.2: While these conditions are purely language-based, they have an impressively large overlap with conditions on episodic remembering as specified in philosophy (and cognitive science) of memory proper (see e.g. Cheng et al., 2016). I interpret this overlap as further support for the language-based approach to mental states, next to support from the close correspondence between the properties of memory/imagination and *remember-/imagine*-reports. I expect that future work on the language of episodic remembering and imagining will identify much more such support.

## Appendix: List of evaluative circumstances

For an easy overview, the list below contains all circumstances of evaluation from Sections 4 and 5 together with their illustrations (in Fig. 8).

- A. Cecilia is constructing a scenario in which the spider whom she has seen in her office is webbing. (Generativity)
- B. Cecilia is constructing a scenario in which the spider who was NOT webbing in her office is webbing. (Non-factuality)
- C. Cecilia is constructing a scenario in which the spider who was webbing in her office is webbing. (Veridicality)
- D. Cecilia is constructing a scenario in which the spider who was webbing in her office is wearing a sombrero. (Severe inaccuracy)
- E. Cecilia is constructing a future scenario in which the spider whom she has seen in her office is webbing. (Non-past-directedness)

- F. Cecilia is constructing a scenario in which some (arbitrary) spider – no one in particular – is/was webbing in her office. (No referential dependence)
- G. Cecilia is constructing a scenario in which the spider whom she saw is webbing the monster of whom she dreamt. (Multiple dependence)

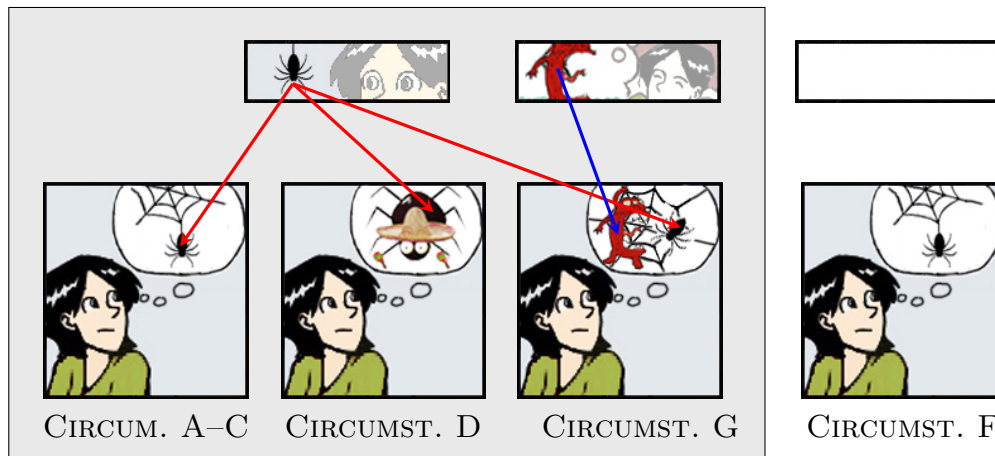


Figure 8: Different circumstances for the evaluation of (1a-i/ii).

## Declarations

### Competing Interests

I declare that I do not have any competing financial or non-financial interests that are directly or indirectly related to the submitted manuscript.

## References

- Abusch, D. (1997). Sequence of tense and temporal *de re*. *Linguistics and Philosophy* 20, 1–50.
- Addis, D. R. (2018). Are episodic memories special? on the sameness of remembered and imagined event simulation. *Journal of the Royal Society of New Zealand* 48(2-3), 64–88.
- Addis, D. R. (2020). Mental time travel? a neurocognitive model of event simulation. *Review of Philosophy and Psychology* 11, 233–259.

- Addis, D. R., A. T. Wong, and D. L. Schacter (2007). Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsychologia* 45(7), 1363–1377.
- Addis, D. R., A. T. Wong, and D. L. Schacter (2008). Age-related changes in the episodic simulation of future events. *Psychological Science* 19, 33–41.
- Arcangeli, M. (2017). Interacting with emotions: Imagination and supposition. *The Philosophical Quarterly* 67(269), 730–750.
- Arcangeli, M. (2021). Narratives and thought experiments: Restoring the role of imagination. In C. Badura and A. Kind (Eds.), *Epistemic Uses of Imagination*, pp. 183–201. Routledge.
- Aronowitz, S. (2023). Semanticization challenges the episodic-semantic distinction. *The British Journal for the Philosophy of Science*.
- Barwise, J. (1981). Scenes and other situations. *Journal of Philosophy* 78(7), 369–397.
- Bernecker, S. (2010). *Memory: A philosophical study*. Oxford: Oxford University Press.
- Blumberg, K. (2018). Counterfactual attitudes and the relational analysis. *Mind* 127(506), 521–546.
- Blumberg, K. (2019). *Desire, Imagination, and the Many-Layered Mind*. Ph. D. thesis, NYU.
- Cheng, S., M. Werning, and T. Suddendorf (2016). Dissociating memory traces and scenario construction in mental time travel. *Neuroscience and Biobehavioral Reviews* 60, 82–89.
- Chierchia, G. (1989). Anaphora and attitudes *de se*. *Semantics and Contextual Expression* 11, 1–31.
- Conway, M. A. (2005). Memory and the self. *Journal of Memory and Language* 53(4), 594–628.

- Craver, C. F. (2020). Remembering: Epistemic and empirical. *Review of Philosophy and Psychology* 11, 261–281.
- Cresswell, M. J. (1982). The autonomy of semantics. In S. Peters and E. Saarinen (Eds.), *Processes, Beliefs, and Questions*, Number 16 in Synthese Language Library, pp. 69–86. Dordrecht: Springer.
- D’Ambrosio, J. and D. Stoljar (2021). Vendler’s puzzle about imagination. *Synthese* 199, 12923–12944.
- D’Ambrosio, J. and D. Stoljar (2023). Imagination, fiction, and perspectival displacement. In *Oxford Studies in Philosophy of Mind*, pp. 219–240. OUP.
- De Brigard, F. (2011). *Reconstructing Memory*. Ph. D. thesis, University of North Carolina, Chapel Hill.
- De Brigard, F. (2023). *Memory and Remembering*. Cambridge Elements in Philosophy of Mind. Cambridge University Press.
- de Marneffe, M.-C., M. Simons, and J. Tonhauser (2019). The commitmentbank: Investigating projection in naturally occurring discourse. In *Proc. of Sinn und Bedeutung* 23, pp. 107–24.
- Debus, D. . (2014). ‘mental time travel’: Remembering the past, imagining the future, and the particularity. *Review of Philosophy and Psychology* 5(3), 333–350.
- dos Santos, C., C. J. McCarroll, and A. Sant’Anna (2022). The relation between memory and imagination: A debate about the right concepts. In A. Sant’Anna, C. J. McCarroll, and K. Michaelian (Eds.), *Current Controversies in Philosophy of Memory*, pp. 38–56. New York and London: Routledge.
- Dranseika, V. (2020). False memories and quasi-memories are memories. In T. Lombrozo, J. Knobe, and S. Nichols (Eds.), *Oxford Studies in Experimental Philosophy*, pp. 175–188. Oxford University Press.



- Dranseika, V., C. J. McCarroll, , and K. Michaelian (2021). Are observer memories (accurate) memories? insights from experimental philosophy. *Consciousness and Cognition* 96(103240).
- Fayyaz, Z., A. Altamimi, C. Zoellner, N. Klein, O. T. Wolf, S. Cheng, and L. Wiskott (2022). A model of semantic completion in generative episodic memory. *Neural Computation* 34(9), 1841–1870.
- Fine, K. (1986). *Reasoning with Arbitrary Objects*. Aristotelian Society Series. Blackwell Publishers.
- Fodor, J. D. (1970). *The Linguistic Description of Opaque Contexts*. Ph. D. thesis, Massachusetts Institute of Technology.
- Forbes, G. (2006). *Attitude Problems: An essay on linguistic intensionality*. Oxford: Oxford University Press.
- Forbes, G. (2020). Intensional transitive verbs. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy (Winter 2020 Edition)*. <https://plato.stanford.edu/archives/win2020/entries/intensional-trans-verbs/>: Metaphysics Research Lab, Stanford University.
- Grice, H. (1975). Logic and conversation. *Speech Acts*, 41–58.
- Grimm, S. and L. McNally (2015). The *-ing* dynasty. *Semantics and Linguistic Theory (SALT)* 25, 82–102.
- Grimm, S. and L. McNally (2022). Nominalization and natural language ontology. *Annual Review of Linguistics* 8(1), 257–277.
- Hassabis, D. and E. A. Maguire (2007). Deconstructing episodic memory with construction. *Trends in Cognitive Sciences* 11, 299–306.
- Hazlett, A. (2010). The myth of factive verbs. *Philosophy and Phenomenological Research* 80(3), 497–522.
- Higginbotham, J. (2003). Remembering, imagining, and the first person. In A. Barber (Ed.), *Epistemology of Language*, pp. 496–533. Oxford: OUP.

- Horn, L. R. (1972). *On the Semantic Properties of Logical Operators in English*. Ph. D. thesis, University of California, Los Angeles.
- Kratzer, A. (2006). Decomposing attitude verbs. Manuscript.
- Langland-Hassan, P. (2021). What sort of imagining might remembering be? *Journal of the American Philosophical Association* 7(2), 231–251.
- Langland-Hassan, P. (2023). Remembering, imagining, and memory traces: Toward a continuist causal theory. In A. Sant’Anna, C. J. McCarroll, and K. Michaelian (Eds.), *Current Controversies in Philosophy of Memory*. New York and London: Routledge.
- Le, P. Q. (2020). Perspective as a communication tool: Third-person (vs. first-person) imagery facilitates analytical (vs. dynamic) language style. Master’s thesis, The Ohio State University.
- Lewis, D. (1979). Attitudes *de dicto* and *de se*. *Phil. Review* 88(4), 513–543.
- Liefke, K. (2021). Modelling selectional super-flexibility. *Semantics and Linguistic Theory (SALT)* 31, 324–344.
- Liefke, K. (2023a). Experiential attitude reports. *Philosophy Compass* 18(6), e12913.
- Liefke, K. (2023b). Two kinds of English non-manner *how*-clauses. In C. Umbach and L. Jędrzejowski (Eds.), *Non-Interrogative Subordinate Wh-Clauses*, Oxford Studies in Theoretical Linguistics. Oxford: Oxford University Press.
- Liefke, K. (2024). Experiential attitudes are propositional. *Erkenntnis* 89, 293–317.
- Liefke, K. and M. Werning (2023). Factivity variation in experiential *remember*-reports. In K. Yada et al. (Ed.), *New Frontiers in Artificial Intelligence. JSAI-isAI 2021*, Volume 13856 of *Lecture Notes in Computer Science*, pp. 110–127. Cham: Springer.
- Mahr, J. B. (2020). The dimensions of episodic simulation. *Cognition* 196(104085).
- Maier, E. (2015). Parasitic attitudes. *Linguistics and Philosophy* 38(3), 205–236.
- Martin, C. B. and M. Deutscher (1966). Remembering. *The Philosophical Review* 75(2), 161–196.

- Martina, G. (2021). Objective smells and partial perspective. *Rivista di Estetica* 78(LXI), 27–46.
- McCarroll, C. (2018). *Remembering from the Outside: Personal memory and the perspectival mind*. Oxford: Oxford University Press.
- Michaelian, K. (2011). Generative memory. *Philosophical Psychology* 24(3), 323–342.
- Michaelian, K. (2016). *Mental Time Travel*. Cambridge, MA: MIT Press.
- Michaelian, K. (2022). Radicalizing simulationism: Remembering as imagining the (non-personal) past. *Philosophical Psychology*.
- Michaelian, K. (2023). True, authentic, faithful: Accuracy in memory for dreams. *Memory* 199(3), 7477–7507.
- Michaelian, K., D. Perrin, and A. Sant’Anna (2020). Continuities and discontinuities between imagination and memory: the view from philosophy. In A. Abraham (Ed.), *The Cambridge Handbook of the Imagination*, pp. 293–310. Cambridge: Cambridge University Press.
- Moltmann, F. (2024). Metaphysics first or language first: The notion of a single object. In R. Gaskin (Ed.), *The Question of Idealism*. Oxford and New York: Oxford University Press.
- Moore, G. E. (1959). Proof of an external world. In *Philosophical Papers*, pp. 12. London: Allen and Unwin.
- Munro, D. (2021). Remembering the past and imagining the actual. *Review of Philosophy and Psychology* 12(2), 175–197.
- Nigro, G. and U. Neisser (1983). Point of view in personal memories. *Cognitive Psychology* 15(4), 467–482.
- Ninan, D. (2012). Counterfactual attitudes and multi-centered worlds. *Semantics and Pragmatics* 5(5), 1–57.

- Ogihara, T. (1989). *Temporal Reference in English and Japanese*. Ph. D. thesis, University of Texas, Austin.
- Özyildiz, D. (2022, 05). Embedded questions and aspect. Ms. Universität Konstanz.
- Perrin, D. (2016). Assymetries in subjective time. In K. Michaelian, S. B. Klein, and K. K. Szpunar (Eds.), *Seeing the Future: Theoretical Perspectives of Future Oriented Mental Time Travel*, pp. 39–61. Oxford: Oxford University Press.
- Perrin, D. and C. McCarroll (2024, 01). Accuracy conditions of episodic memory: The case for veridicalism.
- Perrin, D. and K. Michaelian (2017). Memory as mental time travel. In S. Bernecker and K. Michaelian (Eds.), *The Routledge Handbook of Philosophy of Memory*, pp. 228–239. Routledge.
- Perrin, D., C. J. Moulin, and A. Sant’Anna (2022). Déjà vécu is not déjà vu: An ability view. *Philosophical Psychology* (2022), 1–31.
- Phillips, C. K. (2023). Value-based interpretationism. *Synthese* 202(80), 1–28.
- Quine, W. V. O. (1953). *From a Logical Point of View: Nine logico-philosophical essays*. Cambridge, MA: Harvard University Press.
- Rathbone, C. J., M. A. Conway, and C. J. Moulin (2011). Remembering and imagining: the role of the self. *Consciousness and Cognition* 20, 1175–1182.
- Rice, H. J. and D. C. Rubin (2009). I can see it both ways: First- & third-person visual perspectives at retrieval. *Consciousness and Cognition* 18(4), 877–90.
- Robins, S. (2020). Defending discontinuism, naturally. *Review of Philosophy and Psychology* 11, 469–486.
- Sant’Anna, A. (2023). Is remembering constructive imagining? *Synthese* 202(141).
- Schacter, D. L. and D. R. Addis (2007). The cognitive neuroscience of constructive memory: remembering the past and imagining the future. *Philosophical Transactions of the Royal Society B: Biological Sciences* 362, 773–786.

- Schacter, D. L. and D. R. Addis (2020). Memory and imagination: perspectives on constructive episodic simulation. In A. Abraham (Ed.), *The Cambridge Handbook of the Imagination*, pp. 111–131. Cambridge: Cambridge University Press.
- Sode, F. (2022, 03). Differences in the grammar of German *vorstellen* and *träumen*. Ms. Goethe-Universität Frankfurt.
- Stephenson, T. (2010). Vivid attitudes: Centered situations in the semantics of *remember* and *imagine*. *Semantics and Linguistic Theory (SALT)* 20, 147–160.
- Szpunar, K., J. Watson, and K. McDermott (2007). Neural substrates of envisioning the future. *Proceedings of the National Academy of Sciences of the United States of America* 104, 642–647.
- Theiler, N., F. Roelofsen, and M. Aloni (2019). Picky predicates: why *believe* doesn't like interrogative complements, and other puzzles. *Natural Language Semantics* 27(2), 95–134.
- Tulving, E. (1972). Episodic and semantic memory. In E. Tulving and W. Donaldson (Eds.), *Organization of Memory*, pp. 381–402. Academic Press.
- Tulving, E. (1989). Memory: Performance, knowledge, and experience. *European Journal of Cognitive Psychology* 1(1), 3–26.
- Tulving, E. (2005). Episodic memory and auto-noesis: Uniquely human? In H. S. Terrace and J. Metcalfe (Eds.), *The Missing Link in Cognition: Origins of self-reflective consciousness*, pp. 3–56. Oxford: Oxford University Press.
- Umbach, C., S. Hinterwimmer, and H. Gust (2022). German *wie*-complements: Manners, methods and events in progress. *Natural Language and Linguistic Theory* 40, 307–343.
- Vendler, Z. (1979). Vicarious experience. *Revue de Métaphysique et de Morale* 84(2), 161–173.
- Werning, M. (2020). Predicting the past from minimal traces: Episodic memory and its distinction from imagination and preservation. *Review of Philosophy and Psychology*, 1–33.

- Werning, M. and S. Cheng (2017). Taxonomy and unity of memory. In S. Bernecker and K. Michaelian (Eds.), *The Routledge Handbook of Philosophy of Memory*, pp. 7–20. New York: Routledge.
- Werning, M. and K. Liefke (Accepted). Remembering dreams: parasitic reference by minimal traces in memories of non-veridical experiences. In D. Gregory, , and K. Michaelian (Eds.), *Dreaming an Memory: Philosophical issues*. Synthese Library. Available at: [werning\\_and\\_liefke\\_-\\_remembering\\_dreams\\_parasitic\\_reference\\_by\\_minimal.pdf](#)
- White, A. S. (2021). On believing and hoping whether. *Semantics and Pragmatics* 14(6), early access.
- Yanovich, I. (2011). The problem of counterfactual *de re* attitudes. *Semantics and Linguistic Theory (SALT)* 21, 56–75.
- Zimmermann, T. E. (2016). Painting and opacity. In *Von Rang und Namen*, pp. 427–453.
- Zimmermann, T. E. and W. Sternefeld (2013). *Introduction to Semantics: An essential guide to the composition of meaning*. Berlin: Mouton de Gruyter.