Dream Memories, Metacognition, and the Nature of Dream Experiences

André Sant'Anna
Department of Philosophy, University of Geneva
Centre for Philosophy of Memory, Université Grenoble Alpes
andre.santanna@unige.ch

Abstract

One key feature of many philosophical accounts of dream experiences is the attempt to explain their nature by drawing analogies to other wakeful experiences, most notably perceptual and imaginative experiences. Because we do not have direct access to dream experiences themselves, reports produced on the basis of dream memories have become central for those attempts. The reliance on analogies to wakeful experiences and dream reports does, however, generate what I call the asymmetry problem. This problem states that there is an asymmetry in the way that reports of wakeful experiences and reports of dream experiences are produced, which is potentially misleading when drawing parallels between those experiences. Against this backdrop, my goal in this chapter is twofold. First, I argue that the asymmetry problem can be overcome by investigating how metacognition allows us to distinguish between memories of wakeful experiences and memories of dream experiences. Second, I build on this discussion to tentatively suggest a view of the nature of dream experiences according to which they are neither perceptual experiences nor imaginative experiences, but rather intensified forms of mind-wandering. The focus on metacognition and dream memories thus points to novel and interesting ways in which we can move forward central discussions in the philosophy of dreams.

1 Introduction: Dream Experiences and Dream Reports

What are dream experiences? How should we theorize about their nature? These are central questions in the philosophy of dreams that have received very different answers. Insofar as the first question is concerned, it has become common practice among philosophers to try to account for the nature of dream experiences in terms of *wakeful experiences* (see Windt, 2015 for discussion). For instance, according to one prominent view, dream experiences are fundamentally *perceptual experiences*.[1,2] Dreams are, to be more precise, hallucinatory experiences that we have when we are asleep. There are different versions of what we might call the *perceptual experience view*, each of which has been motivated and defended on different grounds. Key considerations adduced by its proponents include the claims that the view provides an explanation of why dreams are often reported as not being under our control, and that it allows us to make sense of the widespread intuition, most famously articulated by Descartes in his *Meditations* (1641/1996), that we are unable to distinguish dream experiences from actual perceptual experiences of the external world.

Opposing the perceptual experience view, another prominent proposal is that dream

[1]My discussion of the perceptual experience view and the imaginative experience view below draws closely on Windt's (2015, ch. 5 and 6) work on the subject. She lists Descartes (1641/1996) and Revonsuo (1995), among others, as prominent defenders of the perceptual experience view (see Windt, 2015, ch. 5 for a more detailed discussion).

[2]While it is common practice in the philosophy of perception to distinguish between 'perceptual experience'—i.e., the mental state that is shared between veridical and non-veridical occurrences—and 'perceiving'—i.e., veridical cases of perceptual experiences— I will use these terms interchangeably here to mean 'perceptual experience'.

experiences are fundamentally *imaginative experiences*.[3] There are also different varieties of what we might call the *imaginative experience view.* A central consideration that has been offered in its favor is that it provides a neat way out of the problem of dream skepticism—namely, the problem of explaining how knowledge of the external world is possible in light of our apparent inability to distinguish dream experiences from veridical perceptual experiences—because it does not require that we treat dream experiences as involving beliefs (Ichikawa, 2008). Another motivation for the view relates to the phenomenology of dreams. Dream experiences, some proponents of the imaginative experience view have argued, are best viewed as involving mental images as opposed to percepts, which explains the intuition shared by many that dreams lack the presentational phenomenology that is characteristic of perceptual experiences (see, e.g., Sartre, 1940/2010; McGinn, 2004).

The first question—i.e., what are dream experiences—is importantly related to the second question—i.e., how we should theorize about the nature of those experiences—in that most theorizing on the nature of dream experiences has relied heavily on *dream reports,* or reports about dream experiences produced on the basis of the memories that we have of them. In recent work, Windt (2015, ch. 4) has argued that dream reports are methodologically necessary to get dream research off the ground. This centrality notwithstanding, dream reports have been the subject of much controversy in the philosophical literature. For instance, some philosophers have defended a form of skepticism about dream experiences on the basis of dream reports. According to them, all we have access to are dream reports, and it is unclear whether those reports refer to any actual experiences we have when we are sleeping (Malcolm, 1959; Dennett, 1976). Others have argued that dream reports are at best inaccurate depictions of dream experiences. Because such reports are based on memories, and because memories are highly constructive (Michaelian, 2011, 2016; De Brigard, 2014), there are good reasons for thinking that, in the particular case of dream memories, remembering often involves confabulatory elements (Rosen, 2013).

There is, however, another problem that the reliance on dream reports raises, a problem that has been overlooked in recent discussions. The *asymmetry problem,* as I will refer to it, arises out of a tension between the attempt to account for dream experiences in terms of wakeful experiences, on the one hand, and the methodological centrality given to dream reports in philosophical theorizing about dreams, on the other hand. More specifically, as the name suggests, the asymmetry problem highlights the existence of an asymmetry in how we access and produce reports of wakeful experiences and dream experiences. While reports of wakeful experiences are produced on the basis of introspection on the experiences themselves, dream reports are the products of introspection on dream memories. This asymmetry, I will argue in more detail later, is potentially misleading when we are trying to draw parallels between dream experiences and wakeful experiences, which, in turn, is something that is bound to have important implications for our theorizing about the nature of dream experiences.

Against the backdrop of the asymmetry problem, I will try to do two things in this chapter. First, I will offer a solution to this problem that consists in looking more closely at the metacognitive processes that allow us to discriminate memories of wakeful experiences and memories of dream experiences. More specifically, I will argue that we can learn things about the nature of those experiences by investigating how the relevant metacognitive processes distinguish between the memories we have of them. Second, building on this discussion, I will, following

[3]Defenders of this view include Sartre (1940/2010), McGinn (2004), and Ichikawa (2008) (see Windt, 2015, ch. 6 for a more detailed discussion). See also Whiteley (2021) for a recent critical discussion of the imaginative experience view.

existing proposals in the literature, tentatively suggest a view of the nature of dream experiences according to which they are neither perceptual experiences nor imaginative experiences, but rather intensified forms of mind-wandering. The focus on metacognition and dream memories thus points to novel and interesting ways in which we can move forward central discussions in the philosophy of dreams.

I proceed as follows. I begin by discussing and motivating the asymmetry problem in more detail (Section 2). I then consider how work on metacognition—more specifically, work on the source monitoring framework (Section 3) and perceptual reality monitoring (Section 4)—allows us to solve the asymmetry problem and to learn things about the nature of dream experiences. Next, I argue that the picture of dream experiences suggested by work on metacognition comes in support of the view that dream experiences are intensified forms of mind-wandering (Section 5). Finally, I consider and respond to three concerns that might be raised to the argument developed in the chapter (Section 6).

2 The Asymmetry Problem

The asymmetry problem, as formulated above, is motivated by two different claims. The first is the observation that there is an asymmetry in how we access and produce reports of wakeful experiences and dream experiences. The second is the suggestion that this asymmetry is potentially misleading when we are trying to theorize about specific features of dream experiences by drawing parallels to wakeful experiences. Let us consider each of those in turn.

Is there an asymmetry in how we access and produce reports of wakeful experiences and dream experiences? To see why the answer to this question is positive, consider wakeful experiences first. The way in which we generate reports about those experiences is by means of introspection. When I want to produce a report of what it is like to imagine, for instance, all I need to do is to engage in an imaginative act and inspect the various features that characterize my experience in that moment. The access I have to my imagining—or any other wakeful experience—is, in this sense, *direct*, for I can entertain it in mind when I produce a report of that experience. Now, consider dream experiences. The way in which we generate reports about those experiences is *not* by introspecting on them. When I want to know what it is like to dream, I cannot inspect a dream experience *while* I am dreaming. Rather, what I do is to introspect on a *memory* (or memories) I have of one or more dream experiences. The access I have to dream experiences is, therefore, *indirect*, for I cannot entertain them in mind when I produce the relevant reports.

This asymmetry has important implications for how we theorize about the nature of dreams. This is because, and here we turn to the second claim that motivates the asymmetry problem, the asymmetrical way in which we access wakeful experiences and dream experiences is potentially misleading in attempts to theorize about specific features of the latter by drawing parallels to the former. A quick thought experiment helps to motivate this point. Suppose that, in a possible world, perceptual experiences and imaginative experiences have the same phenomenology that they do in the actual world, but that the only way in which we can generate reports about what it is like to have perceptual experiences in this possible world is by means of our memories of them.[4] In addition, let us assume that what it is like to remember a perceptual experience is phenomenologically the same in both worlds. Now suppose that, in this same

[4] Note that the claim here is not that we do not have "online" access to the contents of our perceptual experiences, but only that we cannot produce reports of what it is like to have those experiences *when* they are unfolding. This is all that is required for the asymmetry problem to arise. Thanks to an anonymous referee for suggesting that I clarify this point.

possible world, we were trying to figure out whether perceiving is a form of imagining. Various differences in the phenomenology of those states that we take for granted in the actual world would not be obvious to us in this possible world. For instance, it would not be obvious that perceptual experiences are typically more vivid, detailed, and fluid than imaginings, for those are not features that perceptual experiences are revealed to us as having when we introspect on our memories of them and when we compare them to imaginings.[5] So, the hypothesis that perceptual experiences are imaginative experiences would be much more plausible in this possible world than it is in the actual world. However, as we know from introspecting on both types of experiences in the actual world, that is not the case.[6]

What this scenario illustrates is that, at least in some contexts, the kind of asymmetry we observe in how we access dream experiences and wakeful experiences can lead to misleading conclusions about what it is like to have those experiences. More precisely, if all we had to go by when theorizing about the nature of perceptual experiences were reports produced on the basis of the memories we have of them, we would have good reasons for thinking that those reports do not always reflect the nature of those experiences in an accurate way, or at least in a way that matters for comparing it to other states. Note, moreover, that the claim here is not that dream memories or reports *are* misleading, but rather that they *can* be misleading. The suggestion is also not that, even in cases in which dream memories or reports are misleading, they are *systematically* misleading. Dream memories may fail to accurately depict some specific features of dream experiences, which will naturally reflect on how we report on them, while still remaining accurate to other features of those experiences. The issue, and this is where the asymmetry problem gets its purchase, is that we cannot know in which respects dream memories or reports are accurate and in which respects they are not. It is therefore prudent to seek an alternative way of investigating the nature of dream experiences that does not fall prey to the asymmetry problem.

But can the asymmetry problem be overcome? One natural strategy, and perhaps the most obvious one, would be to think of new ways to generate dream reports, such that they would be a direct product of our introspective access to dream experiences. A promising alternative in this respect would be to turn to lucid dreamers. In laboratory studies, lucid dreamers have been taught how to report that they are dreaming *while* they are dreaming by performing a sequence of eye movements that they learned when awake (Erlacher et al., 2014), which suggests that they are

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[5]Note that the claim here is not that our *memories* of perceptual experiences are not experienced as being more detailed, vivid, and fluid than our *memories* of imaginative experiences. Rather, the suggestion is that when we compare the way in which perceptual experiences are revealed to us through our *memories* of them and the way in which imaginative experiences are revealed to us through *introspection*, it is not obvious that the former are more detailed, vivid, and fluid than the latter.

[6]One might object here by saying that people in this world could still have beliefs that perceptual experiences are vivid and detailed on the basis of their memories of perceptual experiences in the same way that, in the actual world, people have beliefs that dream experiences are vivid and detailed on the basis of their memories of dream experiences. While this is right, I do not think it poses a problem for the scenario envisaged in the thought experiment. The idea that the thought experiment is trying to motivate is that in a world like this, the hypothesis that perceptual experiences are much more detailed and vivid than imaginative experiences is *less plausible* than its counterpart in the actual world because of the asymmetrical way in which we access those experiences. Thus, while in the actual world, where we have direct access to perceptual experiences, it is uncontroversial that they are overall more vivid and detailed than imaginative experiences, the same is not true in this possible world, where there would likely be a substantial debate over whether such is the case. And, as far as we know, the same could be true of dream experiences in the actual world, which gets us the asymmetry problem. So, the issue is not that beliefs to the effect that perceptual experiences are vivid and detailed could not be formed in this possible world, but rather that the reasons for holding on to those beliefs would be much weaker in this scenario. I am grateful to an anonymous referee for raising this objection.

aware of, and hence have introspective access to, their dream experiences. So, it seems possible that, if taught correctly, they could produce more detailed reports of their dream experiences.

While ingenious, such a proposal faces two difficulties. First, it is unclear whether the technique in question is capable of delivering full-blown reports of the type that are used to theorize about the nature of dream experiences. While this is ultimately an empirical question, the fact that subjects are unable to report the contents of their experiences by means of language seems to speak against this possibility.[7] Second, even if it were the case that such reports could be generated, it is not obvious to what extent introspection on lucid dreams would be a reliable guide to the nature of non-lucid dreams. Given that the latter are much more common and have, for the most part, been the central subject of philosophical theorizing, answering this question would be of the utmost importance. In particular, the fact that subjects have significantly more control over their lucid dreaming experiences than their non-lucid dreaming experiences suggests that there is at least one crucial dimension in which those experiences differ from one another. That is, if level of control is indeed one way in which dream experiences are distinct from other conscious experiences, it cannot be simply assumed that lucid dreams offer a straightforward model for theorizing about the nature of non-lucid dreams. Moreover, it is not clear whether the second difficulty can be overcome in a non-question begging way, for specifying the nature of the relationship between lucid and non-lucid dreams requires, first and foremost, resolving the asymmetry problem. In other words, the fact that we might be able to have direct access to lucid dreams makes the access we have to them asymmetric with regard to the access we have to non-lucid dreams, so any parallels drawn between those experiences would fall prey to the asymmetry problem. None of these difficulties are, of course, insurmountable, but they point to more fundamental and controversial questions that would need to be resolved before we can properly tackle the asymmetry problem.

Thus, another alternative, which I shall argue is best suited to overcome the asymmetry problem, consists in looking at the *memories* we have of dream experiences and wakeful experiences. More specifically, I want to suggest that we can learn things about the nature of dream experiences by looking into our ability to distinguish memories of dream experiences from memories of wakeful experiences, such as perceptual and imaginative experiences. There are, to be more precise, source monitoring processes in our brains that are responsible for identifying the origin or source of our memories—i.e., whether they originate in things we actually experienced or in things merely imagined or dreamed. A key feature of these source monitoring processes, described in detail by the *Source Monitoring Framework* (Johnson et al., 1993; Mitchell & Johnson, 2000, 2009), is that they operate by identifying retrieval cues that systematically correlate with features possessed by the experiences that memories are about. Thus, by understanding the principles by which these processes operate, we find ourselves in a position to gain insight into the features of the experiences they track. And this, I suggest, allows us to avoid the asymmetry problem. In theorizing about the nature of dream experiences in this way, we rely on the operations of cognitive processes that are related to dream experiences and wakeful experiences in the *same* way. There is, therefore, no asymmetry in the way we access and draw conclusions about the nature of dream experiences and wakeful experiences. For this proposal to work, though, more needs to be said about how source monitoring processes work and how exactly they allow us to draw conclusions about the nature of dream experiences. I discuss these points in more detail in the next

[7] Of course, the claim here is not that the reports in question need to be linguistic in nature to be legitimate, but only that it is an open question whether alternative methods can deliver the kind of reports that capture the features of dream experiences—e.g., their level of detail and cognitive control (see Sections 3 and 4)—that have been the focus of philosophical theorizing on the subject. Thanks to an anonymous referee for suggesting that I clarify this point.

section.

3 The Source Monitoring Framework

I suggested that we can investigate the nature of dream experiences by looking into how we identify the source of our memories. An explanation of how that happens is provided by what is called the *Source Monitoring Framework* (SMF) (Johnson et al., 1993; Mitchell & Johnson, 2000, 2009). The need for source monitoring processes becomes particularly evident when we consider the fact that remembering is a highly constructive capacity that overlaps in important ways with imagining at the neural level (see, e.g., Addis et al., 2007; Perrin & Michaelian, 2017; Schacter et al., 2012). This has led some theorists, such as Michaelian (2016) and Addis (2020), to claim that remembering is *just* a form of imagining. But if remembering is just a form of imagining, then one natural question is how can we distinguish between information that is remembered—i.e., information that originates in perception—and information that was merely imagined, acquired through testimony, or, more relevant to my purposes, dreamed.

SMF says that such an ability is made possible by metacognitive processes that monitor the source of retrieved information used to produce memory representations. More specifically, there are two ways in which monitoring can happen. One is by means of *unconscious* (or *heuristic* or *type 1*) processes, which rely on a variety of different cues, such as the fluency with which information is processed as well as the quality and strength of that information. For instance, if a retrieved piece of information is processed more fluently, it will likely be attributed to a perceptual experience had by one in the past (Jacoby et al., 1989). Another way in which monitoring can happen is by *conscious* (or *deliberate* or *type 2*) processes, which may include reasoning and deliberation about specific features of memory representations, such as their level of detail and vividness, the relationship between different memories, and how well they cohere with background beliefs. For instance, although it may seem to me that my friend Pedro was at my tenth birthday party, I may consciously refrain from attributing that information to a past experience I had because I know that Pedro moved overseas with his family the year before.

One important thing to note about SMF, and this will be important for the remaining discussion, is that a key cue used in unconscious source attributions is the level of *cognitive activity*, such as deliberation and reasoning, that was displayed at the time of the original experiences (Johnson et al., 1984, p. 330). For instance, if a certain piece of retrieved information is associated with experiences that exhibited high levels of cognitive activity, it is more likely to be attributed to an imaginative experience, for imagination itself typically involves high levels of cognitive activity, than to a perceptual experience, which typically involves low levels of cognitive activity (Dijkstra et al., 2022). Support for this idea comes from studies comparing subjects' capacities for source attribution in experiences that involve different levels of cognitive activity (Johnson et al., 1993, pp. 6-7). Such studies indicate that subjects who engage in more cognitively demanding tasks—e.g., imagining the half of a form as complete when symmetrical to the horizontal axis as opposed to the vertical axis (Finke et al., 1988), or imagining saying a word as opposed to hearing somebody else saying that same word (Johnson et al., 1988)—are better at making source attributions than subjects who engage in less cognitively demanding tasks (see also Johnson & Raye, 1981).

SMF has been very influential in psychology and it has played a prominent role in recent philosophical accounts of remembering.[8] Due to my focus on dreams, my discussion of it here will

[8]For discussion in the context of psychology, see, e.g., Johnson et al. (1993), Mitchell & Johnson (2000, 2009). For discussion in the context of philosophy, see, e.g., Michaelian (2016).

be restricted to how SMF accounts for our capacity to identify retrieved information that originates in dreams. More specifically, how is it that, according to SMF, we can distinguish memories of dream experiences from memories of wakeful experiences? Unfortunately, not much work has been conducted in this domain. However, a 1984 study performed by Johnson et al. (1984) provides important insights into how the metacognitive processes responsible for identifying dreamed information operate. This will serve as the starting point for important theoretical considerations I will raise about the nature of dream experiences along the way.

In the study in question, Johnson et al. (1984) looked into how subjects distinguish memories of real dreams from memories of imagined dreams. Subjects were asked to keep a dream journal where they registered information about dreams that they actually had (real dreams) and dreams that they were asked to imagine (imagined dreams).[9] They were then given a source test where excerpts from the journals were presented. Johnson et al. (1984) found that subjects are much better at identifying information originating in imagined dreams than they are at identifying information originating in real dreams. According to them, this is because imagined dreams involve higher levels of cognitive activity than real dreams, which we experience passively. As they put it, "dreams are deficient in information about cognitive operations that help identify the self-generations we create when we are awake" (1984, p. 333). Importantly, this is in line with SMF, which predicts that higher levels of cognitive activity at the time of experience will result in better performance in source attributions (Johnson & Raye, 1981; Johnson et al., 1993).

There is, however, one important problem with the conclusion drawn by Johnson et al. (1984). As they note (1984, p. 334), another possible explanation for the observed differences in source attribution is that the attributions could have been made based on the level of *detail* and *vividness* of the information retrieved, which is a central cue used by conscious or deliberate monitoring processes (Johnson et al., 1993, p. 6). In other words, if memories of imagined dreams are more detailed and vivid than memories of real dreams, SMF would equally predict that subjects would be better at identifying information they imagined having dreamed than information originating in dreams they actually had. So, it is unclear to which feature of the original experience the cues tracked by monitoring processes are related.

To rule out this possibility, Johnson et al. (1984) conducted an additional study in which subjects were not only given more details in the excerpts used in the source test—three sentences, as opposed to one sentence used in the original study—but were also asked to justify their answers and rate their memories for various features, including level of detail and vividness. As it turns out, no significant difference was observed between memories of imagined dreams and memories of real dreams in terms of their reported levels of detail and vividness. Moreover, the fact that subjects were asked to justify their answers, which requires engaging in conscious reflection, also suggests that conscious monitoring strategies were not the explaining factor for the observed differences in source attributions (Johnson et al., 1984, p. 341). This comes in support of the original hypothesis, according to which the factor that accounts for differences in source attributions is the level of cognitive activity involved in the original experiences.[10]

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[9]In addition to real and imagined dreams, participants were also asked to read dream reports produced by another person (a partner or a housemate) who also participated in the study. Thus, the source test also involved making a decision as to whether the information remembered was read, as opposed to dreamed or imagined. Johnson et al. (1984) report that, similar to imagined dreams, we are better at identifying information originating in read dreams than information originating in real dreams. However, no significant difference was found between imagined and read dreams.

[10]A concern here, one might argue, is that this only follows if the only cues tracked by source monitoring processes are cognitive activity and level of detail and vividness. While source attributions are not based exclusively on these

Now, if we accept the idea that source monitoring processes operate by tracking cues present at retrieval that correlate with features exhibited by the experiences being tracked, then a couple of important lessons can be drawn from these studies. First, given that level of detail and vividness is *not* the feature by which we distinguish between memories of real dreams and memories of imagined dreams, it follows from this that dream experiences and imaginative experiences themselves possess similar levels of detail and vividness.[11] Second, given that the level of cognitive activity *is* the feature by which we distinguish between memories of real dreams and memories of imagined dreams, it follows from this that dream experiences and imaginative experiences *differ* in terms of the level of cognitive activity involved in each.

Thus, if we want to draw an analogy to wakeful experiences, what the investigation into how monitoring processes operate suggests is that dream experiences are more like imaginings in terms of the level of detail and vividness of the representations entertained, but more like perceptual experiences in terms of the level of cognitive activity that is involved in them. And this, I suggest, has important implications for the debate over the nature of dream experiences. If it is indeed the case that dream experiences possess these features, then SMF provides us with strong reasons for thinking that dream experiences are neither perceptual experiences nor imaginative experiences, for they differ from each of those in at least one fundamental aspect.

As it stands, though, one worry with the current proposal is that it is quite a leap to make claims about the nature of those experiences based on how we distinguish between the memories we have of them. More is needed to secure the claim that the cues tracked by source monitoring processes are indeed related to features possessed by the experiences themselves. What can be said to further motivate this claim? In what follows, I turn to recent research on what has been called Perceptual Reality Monitoring (PRM), which, I will suggest, comes in support of the claim the cues tracked by source monitoring processes are indeed related to features possessed by the experiences themselves.

4 Perceptual Reality Monitoring

In a recent paper, Dijkstra and colleagues (2022) make a systematic attempt at articulating the workings of what they call a *perceptual reality monitoring mechanism*. Similar to the case of memory, the need for PRM can be motivated in relation to recent findings showing that

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features—e.g., consideration of how memories relate to background knowledge also serves as the basis for source attributions—the fact that the observed differences in source attributions are not explained by conscious monitoring strategies suggests that unconscious strategies were used, strategies which, according to SMF, track the level of cognitive activity exhibited by the original experiences. Thanks to an anonymous referee for pressing me to clarify this point.

[11]It might be objected here that the first lesson only follows if the monitoring processes operate by *always* tracking *all* the relevant cues. Given, however, that there are different ways in which source attributions can be made, that does not seem right. In response, it is worth noting that it is a tenet of SMF that level of cognitive activity is systematically used as a cue to make source attributions, particularly when unconscious or heuristic monitoring is concerned (Johnson & Raye, 1981; Johnson et al., 1993). In contrast, attributions based on level of vividness or detail are conscious or deliberate ones, which, as discussed before, may also be about other features of memory, such as their coherence or overall fit with background knowledge. So, the objection would be problematic only if it were the case that subjects were using conscious or deliberate strategies to make decisions about the source of their dream memories. But, as pointed out above, there is good reason for thinking that, first, subjects were not engaged in conscious or deliberate strategies when making source attributions, and second, that even if they were, any observed differences in source attribution would not be due to differences in level of detail and vividness, for the ratings associated with memories of real dreams and memories of imagined dreams were similar. I am grateful to an anonymous referee for suggesting that I address this issue.

imagination, perceptual experiences, and dreaming all engage similar neural mechanisms.[12] Since we are, on many occasions, successful at distinguishing those experiences, it is plausible enough to expect that there is a mechanism, or at least a set of processes, that makes this possible.

According to Dijkstra et al. (2022), PRM relies primarily on two types of cues. The first is the *strength* and *detail* of the representations entertained by the subject on a given occasion. The second is the level of *cognitive control* that we have over the representations—e.g., whether we can change the content of a representation, whether we can willingly initiate or stop having the relevant experiences, etc. Thus, PRM says that a typical occurrence of perceptual experiences is one in which the representation is *strong* and *more detailed* and the subject exerts a *low level of cognitive control* over it, while a typical occurrence of imagining is one in which the representation is *weak* and *less detailed* and the subject exerts a *high level of cognitive control* over it (Dijkstra et al., 2022, Sect. 2.1, 2.2).

While there is still much work to be done to understand the workings of PRM, one advantage of Dijkstra et al.'s (2022) account is that it aligns well with our intuitions about what it is like to have perceptual and imaginative experiences, and, consequently, with much philosophical theorizing about the nature of those experiences. For instance, empiricists, most notably Hume (1748/2011), have argued that a key difference between perceptual and imaginative experiences is their level of detail and vivacity.[13] Similarly, many philosophers of imagination have argued that a fundamental aspect that distinguishes imagining from perceiving is that only the former is subject to the will.[14] Thus, PRM vindicates, on more empirical grounds, central ideas that have guided philosophical theorizing about the nature of perception and imagination.

However, one important difference between PRM and traditional philosophical approaches is that the former is not an attempt to provide a set of necessary and sufficient criteria for mental states to count as imaginative or perceptual experiences. Rather, the idea is that these features are *characteristic* of those experiences. This means that there will be, as Dijkstra et al. (2022) note, cases that do not fall squarely into these characterizations. So, again, while more work is required to further specify how we can tell those experiences apart, the current empirical evidence seems to support a separation along the lines just discussed.

Now, how does PRM come in support of the claim that the cues tracked by source monitoring processes are indeed related to features possessed by the experiences themselves? The answer, I suggest, lies in the fact that PRM operates according to principles that are very similar to the principles upon which source monitoring processes operate. In particular, if we accept, as I think it is reasonable for us to do, that the more control we have over a representation, the more cognitive activity will be involved in the experience, then this is in line with a central idea of SMF, which is that the level of cognitive activity in the target experiences provides a key cue to identifying the source of retrieved information. Likewise, PRM stipulates that the strength and level of detail of a representation is central for determining whether one is perceiving or imagining. In parallel, as the discussion of memories of real and imagined dreams made clear, SMF stipulates that level of detail and vividness of a representation is another key cue used to identify the source of retrieved information.

Thus, the existence of perceptual reality monitoring and source monitoring processes that operate according to similar principles comes in support of the picture of dream experiences that

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[12]See Dijkstra et al. (2022, Sect. 1) for a more detailed discussion.

[13]See also Holland (1954) for a relatively more recent discussion.

[14]See Kind (2020) for recent discussion of what she calls 'will-dependence' views of imagination. For defenses of the view in the recent literature, see, e.g., McGinn (2004) and Ichikawa (2008).

emerged from the discussion of dream memories in Section 3. More specifically, the principles that guide the operation of PRM and source monitoring processes suggest a view of dream experiences in which they involve representations that are weaker and less detailed when compared to perceptual experiences, and in which there is a lower level of cognitive control when compared to imaginative experiences. Dream experiences are, to put it differently, more like perceptual experiences when it comes to the level of cognitive control we exercise over them, but more like imaginative experiences when it comes to the level of detail and vivacity of the representations entertained.

The argument for characterizing dream experiences in this way comes from the fact that PRM is also meant to apply to dream experiences (Dijkstra et al., 2022, Sect. 3). In other words, PRM should, at least in principle, allow us to distinguish among perceptual, imaginative, dream, and potentially other types of experience, that engage similar neural machinery. In light of that, thinking of dreams along the lines just suggested becomes a natural way of making sense of how we distinguish between those experiences. Although we might exert similar levels of cognitive control over dream experiences and perceptual experiences, we can distinguish between them by focusing on the level of detail and vivacity of the representations. Skeptical worries aside, a central reason for thinking that I know that I am not dreaming right now is that the representations I entertain match the typical level of detail and vivacity possessed by typical perceptual experiences. Similarly, as discussed in the context of SMF, although dream experiences and imaginative experiences appear to involve the same level of detail and vivacity, we can distinguish between them by focusing on the level of cognitive control we exert over the representations. Imaginings involve a high level of cognitive control—we can decide their subject matters, whether we want to engage in and/or cease acts of imagining, as well as how to manipulate their contents—that is not the case in dreams. Perhaps with the exception of lucid dreams, dream experiences appear to be mostly passive. Thus, this picture of dream experiences explains how we are capable of distinguishing dream experiences from perceptual and imaginative experiences.

5 Dream Experiences as Mind-Wandering

PRM and SMF provide support for a view of dream experiences in which they are neither perceptual experiences nor imaginative experiences. But if that is the case, then *what* are dream experiences? There are two different strategies we can pursue here. First, we might try to conceive of dream experiences as degraded forms of perceptual or imaginative experiences. Such a strategy would be motivated by the fact that, although considerations based on PRM and SMF may establish that dream experiences differ in important ways from perceptual and imaginative experiences when it comes to, respectively, level of detail and vivacity and level of cognitive control or activity, they are not in a position to establish that the level of detail of dream experiences is the *same* as the level of detail of typical imaginative experiences, or that the level of cognitive control or activity in dream experiences is the *same* as the level of cognitive control or activity in perceptual experiences. It might be, for instance, that dream experiences do not involve the same level of detail and vivacity that perceptual experiences do, but their level of detail and vivacity might nonetheless be closer to that of perceptual experiences than to that of imaginative experiences. Likewise, it might be that dream experiences do not involve the same level cognitive control that imaginative experiences do, but their level of cognitive control or activity might nonetheless be closer to that of imaginative experiences than to that of perceptual experiences.

This strategy is, however, unlikely to succeed. For one thing, it is difficult to determine in a non-arbitrary way how much vivacity and level of detail is required for a mental state to count

as a *proper* perceptual experience, such that we can speak of dream experiences as *degraded* forms of the former. The same difficulty arises in connection to level of cognitive control or activity. It does not seem possible to define in a non-arbitrary way how much cognitive control one must have over a mental state for it to count as a proper/degraded imaginative experience. For another thing, the second study carried out by Johnson et al. (1984), in which subjects were asked to rate the level of detail of their memories of real and imagined dreams, suggests that the level of detail possessed by the experiences does not differ significantly. This makes it unlikely that, insofar as level of detail and vivacity are concerned, dream experiences are degraded forms of perceptual experiences.

Similarly, if Johnson et al. (1984) are right in that we are better at distinguishing memories of imagined dreams than of real dreams, then it is unlikely that the level of cognitive control or activity involved in dream experiences is such that they could be classified as degraded forms of imaginative experiences. This is because proper imaginative experiences typically involve a high level of cognitive control or activity. Thus, while a degraded imaginative experience would not involve as much cognitive control or activity as a proper imaginative experience, it is reasonable to expect that it would still involve a significant level of control or activity to justify the classification of those experiences as 'imaginative'. However, if that were the case, it would be difficult to make sense of the fact that we are much better at identifying memories of imagined dreams than memories of real dreams by relying on cognitive control or activity as a distinguishing factor. Thus, although degraded, dream experiences would still be, on this view, imaginative experiences. And, as such, there should not be a significant difference in how we discriminate between memories of degraded and proper imaginative experiences.[15]

In light of these difficulties, a second strategy we can pursue here is to think of dreams as a *sui generis* type of experience. And, if we want to draw a parallel to wakeful experiences, our best bet would be to compare dreams to *mind-wandering*. The relationship between dreams and mind-wandering has, as a matter of fact, been explored by several authors in the recent literature. In the philosophical literature, Windt (2015) has prominently argued that dreams involve a sui generis combination of a variety of features characteristic of different wakeful experiences that, according to her, are best conceived as mind-wandering. Similarly, in the empirical literature, Fox et al. (2013) have argued that empirical evidence supports the attempt to understand dreams as mind-wandering.

More specifically, Fox et al. (2013) note, based on comparisons of dream and mind-wandering reports, that the contents that those experiences are reported as having is very similar. For instance, the majority of our dreams and mind-wandering seem to involve primarily auditory and visual content. Similarly, they seem to represent social interactions to a large extent. Fox et al. (2013) also argue that the *default mode network*, a network of neural mechanisms thought to be central for mind-wandering (Gruberger et al., 2011), is also importantly involved in REM sleep, which is thought to be when most of our dreaming occurs.

There is, however, one key difference between dream experiences and mind-wandering, which has to do with cognitive control. Given that mind-wandering engages prefrontal cortical

[15]One might respond to this argument by saying that any differences in level of cognitive control would be enough to explain the differences in source attribution. The problem with this suggestion is, however, that it requires saying that source attributions are sensitive to different experiences that nonetheless fall under the same type—i.e., that they can distinguish among degraded and proper imaginative experiences, degraded and proper perceptual experiences, etc. Source monitoring processes, at least as standardly conceived by SMF, do not seem to operate according to such fine-grained distinctions.

areas, which are responsible for executive function and cognitive control, it seems reasonable to expect that some level of cognitive control is present in those experiences. Prefrontal cortical areas are, however, largely deactivated in dreams, thus suggesting absence of cognitive control. This difference has led Fox et al. (2013) to argue that, rather than being mind-wandering simpliciter, dreams are *intensified* forms of mind-wandering. This suggestion is in line with the fact that the control we have over mind-wandering seems to vary, with some occurrences of mind-wandering allowing for some control—e.g., as when we select the subject matter of our mind-wandering and constrain it accordingly—and others being more immersive and spontaneous.

Conceiving of dreams as intensified forms of mind-wandering has important implications for how we approach central issues in the philosophical debate over the nature of dream experiences. One important argument in favor of the perceptual experience view is that dream experiences are not under our control. In other words, given that not being under our control is a key feature of perceptual experiences, it is argued that dream experiences are perceptual experiences. However, appealing to intensified forms of mind-wandering is another way of making sense of why dream experiences do not appear to be under our control. Thus, it does not follow that, even if we are inclined to account for dream experiences in terms of wakeful experiences, they are perceptual experiences purely on the grounds that they are not under our control.

Another implication of the *mind-wandering view*, as we may call it, is that it provides a novel way of conceiving of the experience of *immersiveness* in dreams.[16] Dream experiences are often reported as being immersive, in the sense that, when one is dreaming, it feels to one as if one is a part of the world that is dreamed. One natural way of accounting for this feature is to say that it results from the fact that dream experiences are very detailed and vivid representations. And, once again, because perceptual experiences are paradigmatic cases of detailed and vivid representations in wakeful life, one might be inclined to infer on that basis that dream experiences are perceptual experiences. However, the fact that intensified conscious forms of mind-wandering may not be as detailed and vivid as perceptual experiences, but still involve an experience of immersiveness at least to some extent, suggests that the experience of immersiveness may not have to do with the level of detail and vividness of the representations involved in dream experiences. Thus, although much more would need to be said to establish that what is reported as an experience of 'immersiveness' in dreams and mind-wandering is the same kind of experience, the mind-wandering view challenges the thought that to account for dream experiences as immersive, one must conceive of them as perceptual experiences.

A full defense and articulation of the view that dream experiences are intensified forms of mind-wandering requires a much more detailed discussion than the one I have offered here. Such a discussion will need to specify how the more general category of mind-wandering should be characterized and also the ways in which particular occurrences of those experiences may vary. It seems that level of cognitive control or activity is one dimension in which such variation may happen, but there might be variations in other dimensions too, which may shed light on other important features of dream experiences. It has not, however, been my goal here to provide such a discussion here. Rather, my goal has been to argue that once we solve the asymmetry problem by understanding the role that metacognition plays in our capacity to distinguish memories of dream experiences from memories of other types of experiences, the mind-wandering view of dreams becomes a plausible, and arguably the preferable, alternative to account for the nature of dream experiences.

[16]See, e.g., Revonsuo (1995), Windt (2010), and Barkasi (2021) for recent discussion on the subject.

6 Some Problems

Before I conclude, I will address three concerns that might be raised to the argument developed in the chapter. The first has to do with memory processing in sleep. It is well-known that REM sleep plays a crucial role in memory consolidation, which has led some researchers to argue that memory processing in sleep differs substantially from memory processing in wakeful life (Rasch & Born, 2013). In particular, Rasch and Born (2013) argue that the processes involved in memory consolidation in sleep are "incompatible with the efficient encoding and retrieval of stimuli, as required while coping with environmental demands in the wake phase" (p. 737). It might be argued on this basis that this difference in memory processing creates a problem for my attempt to overcome the asymmetry problem by appealing to dream memories.

More specifically, if the suggestion made by Rasch and Born (2013) is on the right track, there appears to be an *asymmetry* in how we form memories of dream experiences and memories of wakeful experiences. It might be that encoding processes during sleep are such that they fail to accurately register information pertaining to the experiences we enjoy while asleep. For instance, it might be that dream experiences are very vivid and detailed, but due to encoding processes being less efficient during sleep, the relevant information is encoded in such a way that suggests otherwise. We are, therefore, back to where we started.

This is a real concern, and one that needs be resolved if the solution to the asymmetry problem I offered here is to succeed. But whether it can be resolved depends, in particular, on whether the differences in encoding during sleep lead to any systematic inaccuracies in how information is encoded. And it is unclear whether that is the case. Rasch and Born's claim that encoding during sleep is incompatible with consolidation is based on an assumption that they make at the beginning of their paper. They say:

> We *assume* that whereas the waking brain is optimized for the acute processing of external stimuli that involves the encoding of new information and memory retrieval, the sleeping brain provides optimal conditions for consolidation processes that integrate newly encoded memory into a long-term store. Encoding and consolidation might be mutually exclusive processes inasmuch they draw on overlapping neuronal resources. Thus sleep as a state of greatly reduced external information processing represents an optimal time window for consolidating memories. (2013, p. 683, my emphasis)

Although they are not clear on this point in the passage above, I take it that what Rasch and Born mean by encoding and consolidation being mutually exclusive in sleep is not that encoding is impossible during sleep, but rather, as they clarify later, that *efficient* encoding is not possible given the importance of sleep for consolidation and the fact that consolidation and encoding engage similar neural resources (2013, p. 737). And this clarification is crucial for dealing with the problem at hand. That is, while the fact that encoding and consolidation engage overlapping neural resources may give us good reason for thinking that encoding is not efficient during sleep, it does not specify the *sense* in which it is not efficient. One possibility is, of course, that encoding processes systematically register inaccurate information. Another possibility is that we are just overall worse at encoding information when we are asleep than when we are awake, which is in line with reports that we are not very good at remembering dream experiences (Hobson et al., 2000). And yet another possibility is that encoding is inefficient in both of these senses. Now, the first and third senses would be problematic for my proposal, but not the second. But given that specifying the relevant sense in which encoding is not efficient during sleep is an empirical question that cannot be settled on purely theoretical grounds, the fact that sleep appears to be primarily dedicated to memory consolidation does not automatically pose a problem to my view.

However, even if the differences in question meant that encoding during sleep leads to the production of memories that are systematically misleading, these differences might be telling in the sense that they point to yet another dimension in which investigating the relationship between memory and dreams might help us understand the nature of dream experiences. That is, by understanding how exactly encoding during sleep differs from encoding during wakefulness, we can gain insight into how information processed during sleep *would have been* encoded during wakefulness—i.e., if encoding processes during sleep were as they are in wakefulness. This would, in turn, allow us to better comprehend how memories of dream experiences would look like if they were formed during wakefulness, and consequently to better understand what it is like to have those experiences. Thus, rather than looking at the role of monitoring at retrieval, the key to solving the asymmetry problem would lie in getting a clearer picture of how memory encoding works in dreams. This is very brief and schematic, but the point is that even if the particular solution I offered here ends up not being suitable, the driving force behind the approach I advocated, namely, that the asymmetry problem can be solved by considering the relationship between memory and dreams, is not threatened by the problems discussed here.

The second potential concern I want to discuss is that the solution I offered to the asymmetry problem is only a partial one. This is because it only concerns the features of dream experiences that are tracked by monitoring processes, which are only *some* of the features possessed by dream experiences. There is, therefore, still an asymmetry with regard to the features that are *not* tracked by the monitoring processes. While I grant that relying exclusively on metacognition to theorize about dream experiences is not a particularly promising approach, it was not my goal to advocate for such a view. A lot of empirical research on dreams has focused on features of dream experiences that an approach focusing on metacognition would have little, if anything, to contribute to. For instance, there is little we can learn about what the contents—understood as the subject matter—of dream experiences are by investigating how we distinguish between memories of dream experiences and memories of other types of experiences. It would, therefore, be difficult to defend such an approach. Instead, my proposal is that looking at metacognition provides a fresh perspective on the *traditional philosophical* debate over the nature of dream experiences, a debate that has relied on considerations directly related to features of dream experiences that *are* tracked by monitoring processes. So, the sense in which my solution to the asymmetry problem is a *complete* one is that it allows us to avoid this problem in the context of the philosophical debate over the nature of dream experiences.

This does not, however, exclude the possibility that there is a more *general* version of the asymmetry problem, one that is *methodological* in nature. This version of the problem concerns not only the features tracked by monitoring processes—which, again, happen to be the ones that are central for philosophical debates—but also other features that have been central for dream research, such as the various studies conducted on the contents of dream experiences (see Schredl, 2010 for a review). These studies rely heavily on dream reports, but if reports of wakeful and dream experiences are produced in asymmetrical ways, then there is an important methodological question concerning the extent to which those reports are legitimate ways to generate hypotheses about what dream experiences are about and also of drawing parallels between their contents and the contents of wakeful experiences. Thus, conceived from methodological point of view, there is much more to be said about how the asymmetry problem can be avoided. And while it has not been my intention to approach the question from this perspective, I believe that when we do so, it poses itself as a crucial one for those involved in dream research, and hence as one that deserves to be explored in future work.

Finally, the third concern that one might have with the solution that I offered to the asymmetry problem is that rather than contributing to our understanding of dream experiences, it is only making things worse methodologically. As discussed in Section 2, the asymmetry problem says that we have different types of access to dream experiences and wakeful experiences. Our access to the latter is direct, in the sense that it takes place via introspection, but our access to the former is indirect, in the sense that it is mediated by dream memories. As a solution, we turned our attention to the operations of the metacognitive processes responsible for distinguishing memories of dream experiences from memories of other wakeful experiences. But this, one might argue, makes things worse, for now the access we have to wakeful experiences is, at least from a methodological point of view, also indirect.

To alleviate this concern, it is important to note that, insofar as methodology is concerned, it has not been my goal to make a prescription as to how dream researchers must proceed. Rather, the argument in Section 2 is that any attempt to theorize about dream experiences by drawing parallels to wakeful experiences exclusively on the basis of dream reports is bound to face the asymmetry problem. It does not follow from this that we should disregard dream reports altogether, but only that whatever conclusion we draw on their basis needs to be backed up independently by conclusions drawn on the basis of a method that is not threatened by the asymmetry problem. Having such an alternative way of formulating and testing our hypotheses about what dream experiences are is, I believe, a positive thing. Hence, it is not true that my proposal leaves us in a poorer methodological position.

To illustrate how my proposal complements, rather than opposes, more traditional approaches that rely primarily on dream reports, let us consider a quick example. As discussed in Section 3, one feature that dream experiences are reported as having is a low level of cognitive control or activity. Now, the asymmetry problem says that dream reports alone cannot establish that dreams do, as a matter of fact, possess this feature. Remember that the claim here is not that dream reports are misleading, but only that they *can* be misleading in virtue of the asymmetrical way in which dream experiences and wakeful experiences are accessed. For this reason, we need an alternative way of testing this hypothesis. And, as discussed in Section 3, it turns out that, after looking into how we distinguish memories of dreams from memories of other wakeful experiences, not being under our control, or involving low levels of cognitive activity, is indeed a feature of dream experiences. The fact that a similar conclusion can be reached by a method that avoids the asymmetry problem thus provides us with additional reason for trusting the contents of our dream reports at least with respect to this particular feature of dream experiences. As a result, we are now in a better position, epistemologically speaking, to gain insight into what it is like to dream.

In summary, if there is a methodological recommendation to be made here, it is that dream reports are valuable for generating hypotheses about the nature of dream experiences. If these hypotheses are confirmed, then dream reports can be useful tools to gain insight into the features of dream experiences that they purport to describe. Thus, rather than replacing dream reports, the attempt to solve the asymmetry problem by investigating dream memories provides a more nuanced and epistemologically prudent view of the role of dream reports in dream theorizing, which, in turn, contributes to legitimizing their use in dream research.

7 Conclusion

In this chapter, I introduced what I called the *asymmetry problem* and argued that it arises out of a tension between the attempt to account for dream experiences in terms of wakeful experiences, on the one hand, and the methodological centrality given to dream reports in philosophical theorizing

about dreams, on the other hand. The asymmetry problem says that the way we access and produce reports about dream experiences and wakeful experiences is different or asymmetrical. This asymmetry, I argued, can be misleading when we try to theorize about specific features of dream experiences by drawing parallels to wakeful experiences.

As an attempt to solve the asymmetry problem, I turned to a discussion of how we distinguish *memories* of dream experiences from memories of wakeful experiences. Given that such a capacity is metacognitive in nature, *metacognition* becomes central for philosophical theorizing on the nature of dreams. In particular, work on the source monitoring framework and perceptual reality monitoring suggests that dream experiences are more like imaginative experiences in terms of the level of detail and vividness of the representations entertained, but more like perceptual experiences in terms of the level of cognitive control or activity that is involved in them. On that basis, I argued that appealing to dream memories and metacognition provides support for a view of dreams in which they are viewed as intensified forms of mind-wandering. This view is line with recent philosophical (e.g., Windt, 2015) and empirical approaches (e.g., Fox et al., 2013) to the nature of dreams. Thus, the attempt to solve the asymmetry problem by investigating the way in which memory and metacognition can inform our theorizing about the nature of dream experiences provides a fresh alternative to traditional philosophical approaches to the subject.

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