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Content determination in dreams supports the imagination theory

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Abstract
There are two leading theories about the ontology of dreams. One holds that dreams involve hallucinations and beliefs. The other holds that dreaming involves sensory and propositional imagining. I highlight two features of dreams which are more easily explained by the imagination theory. One is that certain things seem to be true in our dreams, even though they are not represented sensorily; this is easily explained if dreams involve propositional imagining. The other is that dream narratives can be temporally segmented, involving events which take place across long spans of time; this makes sense if dreams involve sensory imagining, for we often sensorily imagine narratives during wakefulness in the same way. The two considerations are unified by the fact that both highlight forms of content determination characteristic of imagining.

Keywords Dreams · Dreaming · Imagination theory · Imagination · Content determination

1 Introduction

The 'orthodox' theory of dreams, as Ichikawa (2009, passim) calls it, is that dreams involve hallucinatory sensory experiences and actual beliefs (Ichikawa, 2009; Windt, 2015, Chap. 5). A dream experience of a flock of geese flying overhead, for example, might involve a visual hallucination of geese flying overhead and the belief that there are geese flying overhead. An alternative theory is that dreaming involves imagining. It holds that the sensory experiences in dreams are sensory imaginings. It also holds that we do not form beliefs in dreams; rather, we imagine that certain propositions are true (Ichikawa, 2009; Windt, 2015, Chap. 6). A dream experience of a flock of geese

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flying overhead might involve visual imagery of geese flying overhead and propositionally imagining that there are geese flying overhead. One can combine the first commitment of one theory with the second commitment of the other, but it is rare. The only example appears to be McGinn (2004), who holds that the sensory experiences in dreams are imagistic, but that we actually form beliefs in dreams (Ichikawa, 2009). Rosen (2012, 2018, 2024) has advanced a pluralist model of the sensory experiences in dreams, holding that they can be imagistic, hallucinatory, or both. Another possible view about the sensory experiences in dreams is that they are 'sui generis': 'they combin[e] aspects associated with wake states such as hallucinating, imagining, or perceiving in a novel manner without mimicking them completely' (Windt, 2021, Sect. 2.7). It may be that some dreams involve illusory experiences, i.e., inaccurate perceptions of stimuli actually present in the dreamer's environment. This could explain cases where, for example, a siren sounds in a dream at precisely the moment that an alarm clock rings near where the dreamer is sleeping (example from Windt (2021, Sect. 2.5); see also Windt (2018, Sect. 3.2). However, these are non-standard cases, not thought to account for the whole range of sensory experiences in dreams.

The imagination theory has recently increased in popularity; see Gregory (forthcoming) for references and a review of some arguments in its favour. My purpose in this paper is to provide further support for the two tenets of the imagination theory, though I will stop short of endorsing it entirely. I will provide reasons to believe that dreams involve sensory imaginings and propositional imaginings, but I will not argue that they never involve hallucinations or beliefs.

In Sect. 2, I will explain more clearly some aspects of the debate about the nature of dreams, especially regarding the question of whether dreams involve sensory imaginings or hallucinations. In Sects. 3 and 4, I will highlight two features of dreams which are best explained by the imagination theory. The first is that certain things seem to be true in dreams, even though they are not represented sensorily; the second is that dream narratives can be temporally segmented, representing discrete events which take place across long spans of time. In Sect. 5, I will explain why it is that the imagination theory can so easily explain these features of dreaming, bringing to the surface an important relationship between the two features, namely, that they are both forms of content determination characteristic of imagining. I will address a possible objection in Sect. 6.

2 What is the dispute?

2.1 Hallucinations vs. sensory imaginings

The orthodox theory holds that dreams involve hallucinations in the philosophical sense, not in the clinical sense or in any other sense (Windt, 2021, Sect. 2.4). In the philosophical sense, hallucinations are false perceptual experiences. There are two major theories as to what this means, the common kind theory and disjunctivism (Macpherson, 2013). The common kind theory holds that hallucinations are the same kind of mental state as instances of veridical perception, except that they are not caused by external stimulus. They are false perceptual experiences because, although

they are perceptual experiences, they are caused in the wrong way. Disjunctivism holds that hallucinations are a distinct kind of mental state from instances of veridical perception but that they are subjectively indistinguishable from them. They are false perceptual experiences because they seem to be perceptual experiences but are in fact something different; they are not perceptual experiences at all.

What is sensory imagination, in contrast to hallucination? This is an extraordinarily difficult question, which I will not attempt to answer in full. However, one can provide support for the view that dreaming involves sensory imagining by identifying distinctive characteristics of sensory imagining in dreams, even in the absence of a full theory of sensory imagining. In arguing that dreaming involves sensory imagining, I am going to rely on just one feature which can safely be attributed to sensory imagining, namely, that we can, to a considerable extent, determine the content of our mental images, i.e., determine what they represent.

Some mental states which are described as 'hallucinations' in other contexts may not be hallucinations in the philosophical sense. This is because the term, outside philosophy, is used to refer to many abnormal mental states which may or may not be subjectively indistinguishable from corresponding instances of veridical perception. For example, feeling-of-presence experiences are often thought of as hallucinations in clinical contexts, even though they lack a sensory aspect: they consist in the feeling that someone is nearby, without any stimulus to prompt it (Alderson-Day et al., 2023, p. 3692). There are also mental states which are candidates to be considered hallucinations in the philosophical sense, but which may not be considered hallucinations in other contexts. For example, when viewing a Hermann grid, one will seem to see dots at the corners of the squares, even though none are present. One's experience will be subjectively indistinguishable from the experience of viewing a grid which does include dots where one seems to see them. So, as Macpherson (2013, pp. 7–8) points out, the experience of viewing a Hermann grid is plausibly a hallucination in the philosophical sense. Outside philosophy, however, the experience of viewing a Hermann grid is almost universally thought of as an illusion.[1]

Even when philosophers discuss hallucinations, they are not always concerned with hallucinations in the philosophical sense. Numerous philosophers have contributed to discussions about the nature of auditory verbal hallucinations (AVHs), i.e., voice-hearing experiences (see Gregory & Langland-Hassan (2023, Sect. 6) for an overview). The leading theory of AVHs is that they consist of inner speech which the agent does not recognize as their own. This theory has its origins in psychiatry (Feinberg, 1978) and neuropsychology (Frith, 1992), but philosophers discussing it have used the same terminology, referring to the relevant experiences as hallucinations (again, see Gregory & Langland-Hassan (2023)). This is the case even though the theory does not hold that AVHs are subjectively indistinguishable from instances of perception. In fact, it would probably be fatal for the view if it did hold this, as it seems that many AVHs are *not* subjectively indistinguishable from the experience of actually hearing a voice. In one survey of voice-hearers (Woods et al., 2015), for example, 9% of participants reported at least sometimes having experiences which

[1] In the *Encyclopedia of Perception* (Goldstein, 2010), for example, the Hermann grid illusion is described as a 'classic example of a brightness illusion' (Martinez-Conte & Macknik, 2010, p. 1079).

were 'thought-like' rather than auditory, and 56% reported at least sometimes having experiences with a mixed thought-like and auditory quality. It is difficult to work out precisely what the distinction here could be,[2] but the key point is that experiences which participants in the study explicitly distinguished from auditory experiences cannot be subjectively indistinguishable from instances of veridical auditory perception.

Philosophers who account for AVHs in terms of inner speech are not mistaken in describing them as hallucinations. They are just not using the term in the traditional philosophical sense. Their discussions are continuous with discussions in cognate disciplines, and they use the term as it is used in those disciplines.

In contrast to the treatment of voice-hearing experiences as hallucinations in a generic sense, the orthodox view of dreams holds that the sensory experiences in dreams are hallucinations in the philosophical sense. One implication of this is that similarities between dreams and mental states which are described outside philosophy as hallucinations will not automatically be relevant to the question of whether dreams involve hallucinations in the philosophical sense, because those mental states may not be hallucinations in the philosophical sense.

2.2 Beliefs vs. propositional imaginings

It is easy enough to make sense of the disagreement about whether dreams involve beliefs or propositional imaginings. When I am dreaming, do I believe that goblins are chasing me; that I am a costume designer; or that the appropriate place to bake muffins is the refrigerator? Or do I just imagine that these things are true? However, it will serve well to introduce some terminology. For convenience, I am going to refer to those propositional mental states in dreams whose ontology is at issue—those which are candidates to be either beliefs or propositional imaginings—as 'b/p-states' ('b/p' being an abbreviation of 'belief/propositional imagining'). The mental states in dreams which are candidates to be either hallucinations or sensory imaginings can be referred to quite naturally, and neutrally, as 'sensory experiences', but there is no natural and neutral term for the mental states which are candidates to be either beliefs or propositional imaginings. 'B/p-states' is not entirely natural but it is neutral. It will serve well enough.

2.3 Further clarifications

Three further clarifications are necessary, First, there is more to dreams than the sensory experiences and propositional attitudes that they involve. Windt (2010, 2015, Chap. 11) holds that the 'phenomenal core [of dreaming] consists in immersive spatiotemporal experience' (2015, p. 564). She points out, for example, that some dreams do not involve any sensory experience, but even these dreams involve an experi-

[2] The authors offer this quote from one of the study participants to give a sense of how thought-like AVHs might differ from those with an auditory quality: 'I did not hear the voices aurally. They were much more intimate than that, and inescapable. It's hard to describe how I could "hear" a voice that wasn't auditory; but the words the voices used and the emotions they contained (hatred and disgust) were completely clear, distinct, and unmistakable, maybe even more so than if I had heard them aurally' (p. 326).

ence of being located in space and time. To understand the disagreement between the orthodox theory and the imagination theory, it is important to note that they do not seek to offer a full account of dreams, or even to identify anything common to all dreams. They seek to explain the nature of the sensory experiences and b/p-states in dreams, where these things are present.[3]

Second, proponents of the two theories tend to focus on dreams with a certain level of sophistication—dreams which involve sensory experiences with a certain level of phenomenological richness and b/p-states of a certain complexity. As Windt (esp. Windt (2015)) has brought to philosophers' attention, there is a huge variety of dreams. So, the explanatory ambition of the orthodox theory and the imagination theory is actually somewhat limited. Or, at least, it should be somewhat limited, now that there is awareness of the variety of dreams. But focusing on rich and complex dreams is a legitimate thing to do, if the limitations of the approach are recognised. For one thing, rich and complex dreams are a worthy explanatory target, even if there are other such targets as well. For another, rich and complex dreams have an especially important place in philosophical thinking, as they are what motivate one of the most enduring problems in philosophy: the problem of dream skepticism. The worry that one might currently be dreaming has force precisely because there are dreams of a richness and complexity which rivals the character of waking experience.

Finally, I have presented the dispute about the nature of the sensory experiences in dreams, and about the nature of b/p-states, as a dispute between two theories: the orthodox theory and the imagination theory. As I mentioned in the Introduction, there are other possibilities, e.g., Rosen's (2012, 2018, 2024) pluralist account of the sensory experiences in dreams and McGinn's (2004) hybrid theory. Nonetheless, the orthodox theory and the imagination theory frame the debate. The other theories hold that the orthodox theory and the imagination theory are right in some respects and wrong in others. So, although my arguments are offered as supporting the imagination theory and challenging the orthodox theory, proponents of other views will be able to accept them to the extent that they accept the claims of the imagination theory, and will wish to reject them to the extent that they reject its claims.

I turn to the features of dreams which are most easily explained by the imagination theory.

[3] Windt has referred to the immersive spatiotemporal experiences which she takes to be the phenomenal core of dreaming as 'immersive spatiotemporal hallucinations' (2010, passim; 2015, passim). Insofar as some dreams do not involve sensory experiences, one might think that it is a mistake to characterize them as hallucinations of any kind, as experiences which do not involve sensory experiences cannot be subjectively indistinguishable from instances of veridical perception. But Windt is not making any error. In holding that the phenomenal core of dreams is spatiotemporal experience, and referring to these experiences as 'hallucinations', she is simply not seeking to characterize the sensory experiences involved in most dreams, so she is just not using 'hallucination' in the philosophical sense in this particular context. As explained in the main text, she is commenting on a different aspect of dreams.

3 Non-sensory B/P-states

Suppose that we form beliefs on the basis of our sensory experiences during dreams, just as we form beliefs on the basis of our perceptual experiences during wakefulness. If I have a dream involving a visual experience of dolphins dancing, I may form the belief that there are dolphins dancing in front of me. Even if this is so, dreams also involve b/p-states of a different kind.

Suppose I have a dream in which, contrary to reality, I am an accountant holidaying at a tropical resort. Nothing in my sensory experiences in the dream—e.g., the visual experience of waves lapping at the beach on which I seem to be lying—could be the basis for an actual belief that I am an accountant. I could have a dream in which I was an electrician, a podiatrist, or a teacher holidaying at a tropical resort and have the same sensory experiences. Still, *that I am an accountant* is part of my dream. It is something which I take to be true, or imagine to be true, in the dream. But, if I could not have formed a belief that I am an accountant based on my sensory experience in the dream, I must be imagining that it is true. The b/p-state with the content that I am an accountant is a propositional imagining.

This is an argument which can be made quickly; responding to possible objections requires considerably more work. Most obviously, one might object that it *is* possible to form the belief that I am an accountant on the basis of my sensory experiences in the dream. It would require considerable irrationality—being on a beach provides virtually no evidence that one is an accountant—but considerable irrationality is possible, especially in dreams. I will address this objection shortly, but it will be convenient to deal with another one first.

3.1 Objection one: causation by other mental states

One might claim that I can believe that I am an accountant in my dream, even if the sensory experiences in the dream play no role in the formation of the belief. Beliefs can be caused by sensory experiences, but they can also be caused by thought processes. So, perhaps some thought process leads from standing beliefs which I held prior to sleep to the conclusion that I am an accountant. By 'thought processes', I do not only mean exercises in reasoning or otherwise regimented thinking. I mean any causal interaction of mental states. Thought processes can be deliberate and careful, or loose and associative; they can be rational or irrational; they can be guided or unguided; they can be creative or uncreative. A possible example in the relevant context is associative thinking of the following kind: I need to do my taxes (which may be true); accountants do taxes (which is true); I am an accountant (not a rational inference, but a possible outcome of unconstrained, associative thinking). The process might even happen subconsciously during dreamless sleep, so that the belief is formed before the dream begins.

This objection faces a problem. Perhaps I can form the belief that I am an accountant while dreaming, or during pre-dream sleep, but why would I no longer believe this when I wake? Another thought process—i.e., another chain of causal interaction between mental states—must have led me to believe again that I am not an accountant but a philosopher. Even if it is plausible that I form non-sensory beliefs in dreams

which are inconsistent with beliefs which I held prior to sleep, it is extraordinarily unlikely that, in each case, some thought process leads me back to the relevant pre-sleep belief. Why would the belief that I am an accountant feature in any further thought process, whether during ensuing dreams or ensuing dreamless sleep? Why would my thoughts, conscious or unconscious, not go in wholly different directions? And, even if the belief that I am an accountant does feature in some further thought process, why would that thought process inevitably lead to the abandonment of that belief and the re-formation of the belief that I am a philosopher and not an accountant? For the belief could feature in countless other thought processes leading in different directions. It could plausibly happen *occasionally* that one holds a belief in a dream which is inconsistent with a pre-sleep belief and that a further thought process then leads them back to their pre-sleep belief, but it would require a coincidence of virtually infinitesimal probability that it should happen in every case. There is no difficulty, however, if dreaming involves imagining. If I imagine that I am an accountant during the dream, there need not be any thought process which leads me back to the belief that I am not an accountant before waking, because I have never ceased to hold that belief.

The point here is similar to one made by Ichikawa (2009, pp. 112–113), though ultimately different. Ichikawa holds that, if we hold beliefs when we dream, then we sometimes either (1) hold sets of beliefs while dreaming which are contradictory, e.g., my longstanding belief that I am not an accountant and the belief (held during the dream) that I am an accountant; or (2) that we temporarily abandon some longstanding beliefs (e.g., that I am not an accountant) during dreams without having any reason to do so—neither of which, Ichikawa claims, is plausible. My point is that, supposing I do somehow hold beliefs when I dream which are inconsistent with my standing beliefs, it is extraordinarily unlikely that some thought process should inevitably lead me back to the beliefs held prior to sleep, and that this should happen before I wake. Unlike Ichikawa, I am not claiming that we could only form beliefs in dreams if we commit massive contradiction or if we temporarily abandon longstanding beliefs. I am showing that, even if one wanted to claim that we hold actual non-sensory beliefs in dreams—such as the belief that I am an accountant—and that these beliefs are formed via the causal interaction of other mental states, one would face an insurmountable difficulty. It is implausible that we should find our way back to our pre-dream beliefs before waking every time we dream.[4]

3.2 Objection two: sensory causation

The first objection raised above now falls away. If irrationality during a dream allows me to form the belief that I am an accountant on the basis of my sensory experiences of a beach scene, I still need to get back to the belief that I am not an accountant via some thought process—some causal interaction between mental states—before waking. It is implausible that some such process inevitably takes place.

[4] I will later both make some critical remarks about Ichikawa's argument and draw on a revised version of it in addressing some objections to my own. At present, I just want to emphasize that the arguments are different.

It makes little difference if dreams involve delusional thinking.[5] Gerrans (2012, 2014) discusses the relationship between b/p-states (as I call them) and certain delusions relating to sensory experiences, such as the Fregoli delusion, 'in which people say that they are being followed by a familiar person in disguise' (2014, p. 3). Even supposing that we form delusions on the basis of sensory experiences in dreams (a stronger claim than Gerrans makes), delusions are commonly thought of as beliefs, albeit beliefs whose formation involves considerable malfunction of some cognitive system and which are resistant to revision. If I form the belief that I am an accountant in a dream on the basis of sensory experiences of a beach scene, there will need to be some thought process which leads me back to my belief that I am not an accountant before waking, regardless of whether the dream belief was delusional. Again, it is implausible that some such process inevitably takes place.

Not everyone holds that delusions are beliefs. Another view is that delusions are not beliefs but imaginings (see Windt (2021, Sect. 2.8), and references therein). But, if delusions are imaginings, then the position that we form delusions in dreams is consistent with the position that dreams involve propositional imaginings.[6]

3.3 Objection three: forgotten dream beliefs?

Finally, could it not be that we form non-sensory beliefs in dreams and that the reason we do not retain them upon waking is simply that we have forgotten them?[7] After all, we have no recollection of the majority of our dreams (Domhoff, 1996).

The same response is available. Even if we form beliefs in dreams but forget them before waking, this would not explain why our pre-dream beliefs re-form before we wake. This would still require some thought process—some causal interaction between mental states—leading back to our pre-sleep beliefs. Forgetting a newly-formed belief does not in itself lead to re-forming one which was held previously.

3.4 A complication

I have effectively offered versions of the same response to each of the three objections: If one holds that we form new beliefs in dreams which are inconsistent with the beliefs which we held prior to sleep, then one needs to explain how those pre-sleep beliefs are characteristically re-formed before waking. But something might be said in reply to this. One might suggest that we do not actually have to re-form pre-sleep beliefs prior to waking, because we do not actually stop holding our pre-sleep beliefs while we dream.[8] During a dream, we might form beliefs which are inconsistent with our pre-sleep beliefs, which perhaps remain unconscious during the dream, but that

[5] Thanks to a referee for raising this.

[6] There are some other views on the nature of delusions (see Bortolotti (2022, Sect. 1.1)), but I will not embark on a review. If some other theory of delusions is vindicated, and if dreams involve delusions, it might create complications for my argument, but it would also create problems for the view that dreams involve beliefs.

[7] Thanks to a referee for raising this.

[8] Thanks to a referee for raising this.

does not mean that we ceased holding our pre-sleep beliefs. We just had inconsistent beliefs for a period of time.

In effect, this line of thought replies to my argument by embracing the first horn of the dilemma from Ichikawa (2009), namely, that we often hold sets of beliefs while dreaming which are contradictory, e.g., my longstanding belief that I am not an accountant and the belief held during the dream that I am an accountant.[9] Ichikawa gives two reasons to reject this possibility. One is not adequate in the present context, but a revised version of the other does assist.

First,[10] Ichikawa notes that we do not often find ourselves needing to resolve inconsistencies between longstanding beliefs and beliefs formed during dreams. Suppose I form the belief that I am an accountant during a dream. And suppose I do not abandon the belief that I am not an accountant; it remains latent, as it were. If this happens, then we might expect that I would nonetheless become aware of such a significant inconsistency at a later point (after waking) and seek to resolve it. But this does not typically happen. I do not wake, notice that I believe both that I am an accountant and that I am not an accountant (perhaps as I try to determine whether I need to dress in a suit before going to the office), and then try to work out which belief is true.

This is convincing as far as it goes, but it is not adequate for present purposes. In particular, it provides no protection against objection three, which asks: could it not be that we form non-sensory beliefs in dreams and that the reason we do not retain them upon waking is simply that we have forgotten them? If we form beliefs during dreams which are inconsistent with our pre-sleep beliefs, but simply forget those new beliefs before waking, then there will be no inconsistency left to resolve. So, notwithstanding Ichikawa's observation that we do not ordinarily find ourselves needing to resolve inconsistencies in our belief systems after waking, it remains possible that our longstanding beliefs persist through our dreams, even if we form new beliefs during dreams which are inconsistent with them.

The second reason Ichikawa (2009) resists the idea that dreaming characteristically involves forming beliefs which are inconsistent with pre-sleep beliefs is that it implies that dreaming is deeply irrational, which he rejects. 'After all,' he writes, 'agents interested in their own positive epistemic status do not thereby have reason to avoid dreaming, or to take steps, even if there were such possible steps, to dream only truths' (p. 112). Whether one is convinced of this might depend on their views about what is important to an agent's epistemic status. It is certainly plausible that an agent interested in their own positive epistemic status should be interested in more than minimising inconsistent beliefs, and it is possible that dreaming has considerable advantages for one's epistemic situation overall. This could certainly be so if, for example, creativity is epistemically valuable.

There is something similar to what Ichikawa is saying, however, which is more clearly true. Suppose that we do continue throughout a dream to hold pre-sleep beliefs which are contradicted by new beliefs formed during the dream, so that the pre-sleep beliefs do not need to re-form before we wake. This could only really be explained if beliefs formed during dreams have virtually no causal influence on our

[9] What follows is the discussion foreshadowed in footnote 4.

[10] I am actually presenting the arguments in the opposite order to Ichikawa, but this has no significance.

other beliefs. If we really do form new beliefs in dreams, then we should expect at least some revision to our pre-existing beliefs. Forming a new belief does not always cause us to revise existing beliefs, but it often does. This is part of the functional profile of beliefs: they impact one another. So, forming the belief that I am an accountant in a dream, for example, might have the effect that I cease believing that I am a philosopher, even if I never abandoned the belief that I am an accountant. If I am an accountant, after all, then I am almost certainly not a philosopher, given the extreme unlikelihood of being both. In this case, even if I forget the newly-formed dream belief that I am an accountant before waking, I should also no longer believe by then that I am a philosopher. But, generally speaking, we do not seem to wake lacking beliefs which we had prior to sleeping. This would have considerable implications for how we go about our lives.

Finally, notice that this does not have anything to do with rationality. The example I just used does involve a legitimate process of extrapolation: again, if I am an accountant, then I am almost certainly not a philosopher, given the extreme unlikelihood of being both. But the formation of a new belief can also result in the abandonment of another belief—perhaps a totally unrelated belief—via an irrational process. Forming the belief that I am an accountant might not cause me to abandon the belief that I am a philosopher, but it might, via some irrational thought process, cause me to abandon my longstanding belief that I like pasta. The fundamental point is that a critical part of the functional profile of beliefs is that they tend to influence other beliefs, via rational and irrational thought processes. Not always, but very often. The power to influence other mental states, via rational or irrational processes, is essential to the functional profile of beliefs. A mental state lacking it is not aptly called a 'belief'. But the b/p-states in dreams do not seem to cause the abandonment of existing beliefs: generally, we do not wake up lacking beliefs we had previously or with significantly revised ones.

This is why we should reject the suggestion that we can just continue to hold pre-existing beliefs during dreams despite forming new beliefs which are inconsistent with them. It would lead to abandoning (or revising) those pre-existing beliefs (or other pre-existing beliefs) at least fairly often. Insofar as we typically wake with very much the same beliefs we had prior to sleeping, it would then need to be the case that some thought process leads to the reformation of the pre-existing beliefs prior to waking, and it is implausible that this characteristically happens.

3.5 Scope of the argument

The discussion in this section relates only to non-sensory b/p-states in dreams. It does not apply to the sensory b/p-states in dreams. So, it does not provide a reason to think that the b/p-state that I am seeing dolphins dancing is a propositional imagining rather than a belief. As well, the example I have been discussing—the b/p-state that I am an accountant—is a b/p-state which does not correspond to a standing belief which I actually hold. If I have a dream involving the b/p-state that I am a philosopher, then the b/p-state involved will correspond to a belief which I actually hold. My

argument does not provide a reason to think that b/p-states of this kind are propositional imaginings rather than beliefs which become conscious during dreams.[11]

The fact that there are limits on the argument, however, is not damaging. My purpose in this paper is to provide more support for the imagination theory of dreams; showing that the non-sensory b/p-states in dreams which do not correspond to actually held beliefs are propositional imaginings does this. Distinct argumentation would be required to show that other b/p-states in dreams are propositional imaginings. Alternatively, if one has some independent reason to think that all of the b/p-states in dreams must be of the same kind, then they will also think that showing that some b/p-states in dreams are propositional imaginings entails that all b/p-states in dreams are propositional imaginings. But I am not claiming this.[12]

I now turn to a second feature of dreams.

4 Segmentation

Dreams can have a quality I will call 'temporal segmentation'. Their narratives consist of series of short segments which are somehow linked. In this way, they resemble films. Typically, a film involves a narrative which plays out over days or weeks, but the film itself lasts only hours. This is possible because the film consists of a series of segments depicting the key events in the narrative. The same can happen in dreams. Suppose you have a dream in which you are involved in a bank robbery: you are in the bank early in the day demanding the tellers empty their tills; then on the street outside in a shootout with the police; then in the getaway car; then hiding out in a vacant warehouse throughout the afternoon and evening; then finally slipping away into the darkness late at night. The dream need not take hours: it need not include all of the time in the bank, or in the getaway car, or in the warehouse. It might feature only a few moments from each stage and be over in minutes.

If one doubts that dreams can involve temporal segmentation, notice that temporal segmentation is necessary to account for another feature of dreams: that they can involve events which take place in multiple distant locations. We would believe someone who reported a dream in which they reached the summits of Mount Elbrus and Mount Kilimanjaro but then failed in an attempt to climb Everest. However, we would not believe them if they claimed that the dream involved every moment of the trip from North America to Africa and from Africa to Asia: it takes a very long time to

[11] Of course, in order for it to be possible that b/p-states in dreams corresponding to standing beliefs are propositional imaginings, it would have to be the case that we can propositionally imagine something which we believe. I will not explore whether this is possible.

[12] It might be thought that there is also some similarity between my argument and Walton's (1990) discussion of dreams (pp. 43–51), but our explanatory projects are quite different. Walton largely assumes that non-sensory content in dreams is imagined in order to develop an account of fictionality in dreams. This is part of his project of understanding fiction generally. (Walton also thinks that not everything which is true in the fictional world of a dream is imagined, because the fictional world of the dream goes beyond what is actually dreamt, but this is not relevant here.) My purpose here has been to defend the premise itself (viz., that the non-sensory content in dreams is imagined), as it is also one of the tenets of the imagination theory.

travel between these three mountains.[13] The dream, involving events taking place at multiple distant locations, is possible precisely because dreams can involve temporal segmentation, i.e., because dreams need not represent every moment in a narrative. Large parts can be elided. So, this dream might include representations only of the key moments on the mountains. The bank robbery dream also involves events taking place in different locations, and this is possible because of temporal segmentation, but the point becomes clearer when the distances are increased.

The fact that dreams can involve temporal segmentation is unsurprising if dreaming involves sensorily imagining rather than hallucinating. If you imagine the bank robbery narrative taking place while you are awake, the mental images you produce will presumably be like those in the dream: sensory representations of important but temporally separated events. Imagining the whole narrative playing out would require a whole day. By contrast, we cannot avoid experiencing what we perceive as temporally continuous, whether the perception is veridical or falsidical. When we perceive, periods of time cannot be elided. So, someone who experienced a waking hallucination consisting of the same series of brief sensory experiences would not be under the impression that the above-described narrative was playing out. The experience would be an experience as of perceiving the several events playing out in a temporally unbroken sequence, with immediate and unaccounted for changes of location, without any indication that the events were part of one narrative (and, thus, presumably a deeply confusing experience). Hallucinations in the philosophical sense, after all, are either the same kind of mental state as veridical perception or subjectively indistinguishable from veridical perception. And, again, we inevitably experience what we veridically perceive as temporally continuous. A mental state in which we experience events other than as temporally continuous will not be subjectively indistinguishable from veridical perception. Insofar as we do experience dreams involving narratives, despite the segmented sensory experiences they involve, there is reason to believe that dreaming involves sensory imagining.

Let us consider some possible objections.

4.1 Objection one: long hallucinations

Some kinds of hallucinations can last hours (Waters & Fernyhough, 2017, p. 37 and references therein). These include verbal hallucinations in the context of tinnitus, dissociative identity disorder, affective disorders, and in the non-clinical population, and visual hallucinations in Parkinson's disease (ibid.). Whether any of these hallucinations count as hallucinations in the philosophical sense will simply depend on whether they are subjectively indistinguishable from corresponding instances of veridical perception. Let us just suppose, though, that hours-long hallucinations of these kinds are at least sometimes hallucinations in the philosophical sense. If so, one might think there is no bar to holding that dreams can involve extremely long narratives playing out, and that the sensory experiences in dreams are nonetheless hallucinations.

[13] And vastly more time to scale them, but this is separate from the point I am making here.

This would miss the point. The point is not that there cannot be hallucinations in the philosophical sense which run for hours. It is not necessary to determine this. The point is that dreams do not run for hours on end: not long enough to represent a day of criminal activity, certainly not long enough to represent a world climbing tour, unless they involve temporal segmentation. And, if they involve temporal segmentation, they involve sensory imagining.[14]

4.2 Objection two: fast hallucinations

The second objection would question the idea—implicit in the argument from segmentation but brought to the surface in my response to the first objection—that hallucinations in the philosophical sense must represent events taking place at the same speed as they would in reality. A proponent of this objection would insist that a sensory experience can be subjectively indistinguishable from veridical perception, and thus be a hallucination in the philosophical sense, even if it represents events occurring many times faster than such events would occur in reality. What matters is that the sensory experience is subjectively indistinguishable from the veridical perceptual experience one would have if the events represented did occur in reality at the vastly faster rate, no matter how unlikely that is. If this is so, then the mountain climbing dream, for example, might be a hallucination in which one has sensory experiences subjectively indistinguishable from those they would have if they did somehow complete their climbing tour—the climbing, the travel, and everything else—in (say) a matter of minutes. The whole, weeks-long narrative would be represented without segmentation.

This objection, however, relies on a premise which is not supported by the empirical research. As Erlacher et al. (2014) put it after citing relevant experimental findings, 'it is a widely accepted hypothesis that subjectively experienced time in dreams corresponds with the actual time' (p. 2).[15] That is, a dream with duration x can only represent an event which, if actual, would have duration x. They then present findings from a study of their own in which lucid dreamers actually took longer to perform certain actions in their dreams than would be required if the actions were performed in reality.[16] So, dream events simply do not play out faster than corresponding events in reality, foreclosing on the possibility that complex narratives in dreams are represented by hallucinations happening at an extremely fast pace. A dream which represented every moment of the mountain climbing narrative playing out in actual

[14] The question of how long dreams do run is actually complicated; see Windt (2015, pp. 77–80). Plainly, though, dreams do not run longer than the period of time one is asleep, but they can represent events playing out over vast periods.

[15] One study (Moiseeva, 1975) did find that dreams can represent events whose duration exceeds the duration of the dream itself up to 100 times over. If this is right, it would be a major problem for my argument. However, the study appears to be a genuine outlier; its findings are inconsistent with the prevailing view, based on the body of research overall. Thanks to Daniel Erlacher for correspondence on this point.

[16] The authors carefully discuss whether their results would generalize to non-lucid dreams (p. 6), but we need not explore this. The findings they report certainly provide further evidence that dream events do not play out faster than events in reality, which is all that is needed to defeat the objection.

time—i.e., a dream which represented this narrative without temporal segmentation—would still require weeks. And dreams do not last weeks.

4.3 Objection three: dreams and films

At present, I will just flag this objection. One might ask: If films can consist of short segments representing the key events in a complex narrative, why can hallucinations not do the same? And, if they can, is it not open to hold that dreams involving complex narratives consist of hallucinations representing only the key events in those narratives?[17]

In short, the reasons that films, but not hallucinations, can represent narratives in this way is that films involve images, albeit external images rather than mental images. Explaining this requires further discussion about imagination, which will come in Sect. 5.1 and 5.2. I will return to the objection in Sect. 5.3. First, I want to compare the argument in this section with a superficially similar one offered by McGinn.

4.4 Narrative structure

According to McGinn, 'dreams typically have a narrative structure, of varying degrees of coherence' (2004, p. 84). They 'often have a beginning, a middle, and an end' and they may even 'have a denouement that must have been foreshadowed at the outset' (ibid.), as well as various other characteristics of narratives. He holds that the narrative structure of dreams is best explained on the hypothesis that dreams involve sensory imaginings. Whereas our perceptual experiences are largely imposed on us by our environment, 'images can be shaped into narrative sequences' because they 'are subject to the will' (p. 85). This happens, after all, in ordinary cases of wakeful imagining.

The argument is slightly odd, as there is no reason that hallucinations in the philosophical sense cannot represent coherent narratives. In any case, my point is different. I am not relying on the premise that dreams often involve 'a narrative structure, of varying degrees of coherence'. I am relying on the premise that dreams can involve events which are temporally separated. The examples I have given involve dreams with coherent narratives, but this is actually irrelevant. A dream which involves an entirely incoherent narrative—or even a series of entirely unrelated events, e.g., Lincoln delivering the Gettysburg Address followed by Elvis singing *Fever*—could nonetheless involve temporal segmentation. This is best explained by the hypothesis that dreams involve sensory imaginings. So, McGinn's argument and my argument are different, and one can certainly reject McGinn's and accept mine.

[17] Thanks to a referee for raising this.

5 Content determination

We have two features of dreams which are easily explained on the imagination theory, but problematic for the orthodox theory. I now want to examine *why* the imagination theory is well placed to explain them.

5.1 Labelling

To a great extent, we determine the content of our sensory imaginings. You can, for example, form a mental image of Angela Merkel, and you can form a mental image of someone who is physically identical to Merkel, but who is not Merkel. The images might be identical, but you know that the first represents Merkel and the second represents a physical duplicate of Merkel (Kung, 2010; Wittgenstein, 1958/1969, p. 39). This is possible because, in each case, you 'assign' that information to the image, as Kung (2010, passim) puts it. You 'label' one image *Merkel* and the other image *physical duplicate of Merkel* (ibid.).[18] It must be so, for there is simply no fact of the matter as to which image represents Merkel and which represents her physical duplicate beyond what you determine. There are limits to this—one can scarcely form a mental image resembling a boat and label it *Merkel*—but the issue of where these limits lie is not relevant here.

As Kung acknowledges, his terminology can be misleading (p. 625). Labelling does not require first forming an image and then deeming that it has some particular content. Ordinarily, labelling is just part of sensorily imagining. In imagining Merkel, I form a visual image and label the object, *Merkel*. If I do not do both of these things, I have failed to imagine Merkel.

McGinn (2004, pp. 82–84) has observed that labelling is also characteristic of dreams and has appealed to this fact as evidence that dreams involve sensory imagining.[19] 'A striking fact about dreams', he writes, 'is that we almost invariably know who and what we are dreaming about' (p. 82). We do not need to infer the identity of the individuals or objects in our dreams on the basis of their appearance or any other attributes; this is something which we just know. So, if you have a dream featuring Merkel, you will just know that it is Merkel rather than a physical duplicate of Merkel, even though the sensory experiences involved in a dream about Merkel and a dream about a physical duplicate of Merkel could be identical. If dreaming involves sensory imagining, McGinn believes, there is no mystery here. In the same way that we label mental images formed during wakefulness, thereby determining their objects, we label mental images formed in dreams, determining their objects. By contrast, it is difficult to see how the hallucination theory could explain the fact that we almost always know the identity of the individuals and objects in dreams, because we cannot simply dictate what perceptual experiences represent, whether they are veridical or falsidical.[20]

[18] I have changed Kung's example, but the terminology is his.

[19] This is a separate argument from the one discussed just above about the narrative structure of dreams.

[20] So McGinn argues. Gerrans (2012, 2014) relates the identification of characters in dreams to the cognitive processes involved in identifying individuals whom we actually perceive in reality, including when

5.2 Stipulating and designating

The features of dreams reviewed in Sects. 3 and 4 are also manifestations of forms of content determination which are characteristic of imagining.

A second way Kung identifies that we can assign content when we form mental images is to 'stipulate' that certain propositions are true (p. 625). Stipulated content is 'propositional content that goes above and beyond that of the mental image' (ibid.). A stipulation is effectively a propositional imagining related to the image. Suppose I imagine playing golf alone while my usual golfing partner is away on holidays. I might form mental imagery corresponding to the sensations one experiences on a golf course, but that my usual partner is on holidays is something I stipulate.[21] It is not something represented sensorily; after all, I could form the same mental imagery but imagine that I am playing golf alone because my partner is injured.

In the accountant dream, I have a sensory experience of a beach scene. That I am an accountant is part of the dream, but it is not represented sensorily; it is a propositional imagining. We can now see that it is a 'stipulation'. Its content is 'propositional content that goes above and beyond that of the mental image' (ibid.). This content relates to the sensory experience because it provides context for it.

Perhaps more surprising is that temporal segmentation also involves a kind of content determination. Specifically, it involves labelling, though labelling of a notably different kind. What is going on in the bank robbery dream is similar to what happens in the case of imagining Merkel. The Merkel-like mental image represents Merkel, rather than a physical duplicate, because I determine this. I make it the case by labelling the object of the sensory representation. We can say that it involves 'object-labelling'. Why does a series of sensory images represent temporally separated events in one overarching narrative, rather than a series of unrelated events? I make this the case via what we might call 'sequence-labelling'. At the start of the bank robbery dream, I form mental imagery of the scene inside the bank and object-label the various individuals and objects—and I also sequence-label the event represented as the first episode in a narrative. Similarly for the scene involving the shootout and the scene in the getaway car: I form mental imagery of the scenes and object-label the various individuals and objects—and I sequence-label the events represented as the second and third episodes in a narrative. I do not need to represent the periods of time which would separate those events if the whole narrative actually played out, because I simply determine that they are parts of the one narrative.

The way I have just described the bank robbery dream will sound over-formal, but it hopefully makes the phenomenon of designation vivid. Sequence-labelling, like object-labelling, does not actually involve assigning tags with names. It is just a part of what one does in imagining a series of events as events in an overarching narrative, in the same way that labelling the object of a mental image *Merkel* is a part of

the identification is implausible, such as in the Fregoli delusion. A hallucination theorist might begin to respond to McGinn by developing this line of thought. I find McGinn's argument persuasive, but my purpose here is not to defend it. The two arguments which I have offered for the imagination theory depend on other forms of content determination, as will now become apparent.

[21] Kung draws a distinction between 'background stipulations' and 'foreground stipulations' (p. 265). The example I have provided is a background stipulation, but it is not important in the present context.

imagining Merkel. One fails to imagine a series of events as events in an overarching narrative if they do not sequence-label the scenes.

'Object-labelling' and 'sequence-labelling' are helpfully explicit terms, but it may be preferable, for purposes of continuity, to use 'labelling' as Kung does, to refer to the labelling of objects. I will use the term, 'designating', to refer to the labelling of scenes in a series for the remainder of this paper.

5.3 The film objection

We can now return to the third objection to the temporal segmentation argument (see Sect. 4.3). If films can consist of short segments representing the key events in a complex narrative, why can hallucinations not do the same? And, if they can, is it not open to hold that dreams involving complex narratives consist of hallucinations representing only the key events in those narratives?

The key difference between the representations in films and the representations in hallucinations, I said, is that the representations in films are images, albeit external images rather than mental images. The only difference between the images in films and most other external images, like paintings, is that the images in films are not static. They can represent movement and events in ways that other external images cannot. External images, just like mental images, involve content determination. Something makes it the case that a painting resembling Merkel is a representation of Merkel and not a representation of a physical duplicate of Merkel. A standard position in aesthetics is that what makes an external image a representation of some particular person or thing is that the image-maker (e.g., the painter) intended this—the view called 'intentionalism'[22]—though there is no need to settle this here. Somehow, a painting of Merkel is labelled either *Merkel* or *physical duplicate of Merkel*. Similarly, where the several scenes in a film represent temporally separated events, it is because the scenes are designated, whether this is determined by the director's intention or by something else. The reason that both dreams and films can represent temporally separated events, then, is that both involve designation. On the other hand, designation is not possible in hallucinations. Again, we experience events or scenes which we veridically perceive as temporally continuous. A mental state in which we do not experience events or scenes as temporally continuous (because it involves designation) will not be subjectively indistinguishable from veridical perception, and thus not a hallucination.[23]

[22] Thanks to Ben Blumson for correspondence about this.

[23] One might ask: If films represent temporally separated events, and if we have perceptual experiences of films (which is obviously what watching a film involves), does this not in fact show that designation is possible in perception? That is, does it not in fact show that we can have a continuous perceptual experience of a series of temporally separated events and just determine that the events are part of a single narrative, notwithstanding that we do not in any way experience the periods of time which would pass between those events, if the narrative actually played out? It does not. A film, which consists of external images, represents temporally separated events, and this is possible because it involves designation. One's experience of watching the film, which is a perceptual experience, does not involve temporal segmentation: one has perceptual experience of each instant of the film, even if the film itself represents temporally separated events. The point I am making here is that dreams represent narratives in (roughly) the same way as films, not in the same way as our perceptual experiences of watching films. Both dreams and films can involve

6 Actions

One last possible objection. One might say that the reason we have so much power to determine what our sensory imaginings represent is that imagining is an action. Also called 'intentionalism', this has actually been the standard view in the philosophy of imagination (for a list of some proponents, see Munro and Strohminger (2021, p. 11,848, footnote 1). When I imagine Merkel, I perform one action; when I imagine her duplicate, I perform another action; what determines which of these two actions I am performing is that I intend to perform one rather than the other. Similarly, if I were to imagine a scene corresponding to the accountant dream during wakefulness, what would make it the case that I was imagining that I was an accountant rather than anything else would be that I intended to do this. If I were to imagine the bank robbery narrative during wakefulness, what would make it the case that I was imagining a narrative playing out rather than imagining unrelated events would be that I intended to do this. This analysis would obviously correspond to the intentionalist theory of representation in aesthetic philosophy.

If imagining is an action, and if dreaming is not an action,[24] there may be a problem for the imagination theory (see McGinn (2004, pp. 88–91), Ichikawa (2009), and Whiteley (2021) for discussion). However, it may be especially worrisome if one argues that dreaming is imagining by highlighting a property which imagining may have precisely because it is an action.

The objection is not so threatening. McGinn (2004, pp. 88–91) holds that dreaming actually is an action, and Ichikawa (2009) seems to as well, claiming that it is 'subject to the will' (p. 116), but no such commitment is required here. Stipulating and designating may not depend on intention at all. Imagining can be an action, but it is not always so. It is possible to have imaginative experiences corresponding to the accountant dream and the bank robbery dream during wakefulness *unintentionally*. There will still be no question as to what you are imagining. The same is true—and perhaps even easier to see—in the case of labelling. I might imagine Merkel unintentionally—the image just comes to my mind, as it were—but I will be in no doubt that I am imagining Merkel and not a physical duplicate. If stipulating and designating (and labelling) do not require that imagining is an intentional action, then it may be that dreaming simply involves unintentional imagining—a possibility previously suggested by Whiteley (2021).

designation, precisely because they are imagistic representations (albeit of different kinds). We do have perceptual experiences of films, but this is not relevant, as the perceptual experiences themselves do not involve temporal segmentation. Thanks to two referees for raising this issue.

[24] Possibly excepting lucid dreams in which the dreamer also has control over the content of the dream.

7 Conclusion

Some things are true in dreams even though they are not represented sensorily, and dreams can represent extended narratives despite considerable segmentation. These two features of dreams are best explained if dreaming involves (propositional and sensory) imaginings, because we can determine much of the content of our imaginings.

I will conclude with a caveat, a note about methodology, and an observation. The caveat: As mentioned early in this paper, I do not endorse the imagination theory without restriction. I have not argued that there are never beliefs in dreams, nor that there are never hallucinations. A hybrid account of the sensory experiences in dreams (of the kind proposed by Rosen (2012, 2018, 2024)) is still open. A hybrid account of the belief-like states in dreams also remains open. Stipulation and designation are likely pervasive features of dreams, insofar as one is necessary for dreams involving any non-sensory b/p-states and the other is necessary for any dreams involving temporal discontinuity. If this is so, then hallucinations and beliefs might play only marginal roles in dreams, but I have not argued for this.

The note on methodology: The arguments I have offered are abductive. I have highlighted features of dreams and argued that they are best explained by the imagination theory. It is possible that non-sensory b/p-states are beliefs, and that some thought process—some causal interaction between other mental states—inevitably leads us to re-form our previously held beliefs before waking. It is possible that, contrary to the existing evidence, dreams represent events happening at a vastly faster rate than corresponding events would actually happen in reality, so that temporal segmentation is not required to represent long narratives. So, the arguments are not conclusive. They do not provide decisive support for the imagination theory, but they do provide support for it.

The observation: The debate about the ontology of dreams has neglected an important aspect of dreams. In dreams, we seem to do things. That is, we seem to act. The nature of these apparent actions is not addressed by the imagination theory as it has so far been developed. It should not be assumed that dreaming involves imagining acting on the basis that it involves sensory and propositional imagining. Some other explanation might be available. However, it is worth noting that there is a kind of content determination involved when we imagine acting. What makes it the case that I am imagining waving excitedly, rather than imagining flailing my arms randomly, is that I do something like label the action. The fact that we usually know what we seem to be doing in dreams, then, makes sense if dreaming involves imagining acting. But this is only a gesture towards an argument. The nature of our apparent actions in dreams also requires attention, if we are to fully understand the ontology of dreams.

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