

Imaginative Beliefs

Joshua Myers

LOGOS, Department of Philosophy
University of Barcelona

*Forthcoming in *Inquiry*. Please cite published version*

Abstract

I argue for the existence of imaginative beliefs: mental states that are imaginative in format and doxastic in attitude. I advance two arguments for this thesis. First, there are imaginings that play the functional roles of belief. Second, there are imaginings that play the epistemic roles of belief. These arguments supply both descriptive and normative grounds for positing imaginative beliefs. I also argue that this view fares better than alternatives that posit distinct imaginative and doxastic states to account for the same phenomena. Along the way, I demonstrate the theoretical significance of imaginative beliefs by showing how they pose a challenge for standard taxonomies of the mind, clarify the sense in which imagination is occurrent and voluntary, explain the justificatory role of the imagination, and point to a deep but underappreciated symmetry between imagistic and non-imagistic thought.

1. Introduction

Imagination and belief are often contrasted with each other. To believe that p is to endorse p , to have a cognitive commitment that p , to represent p as true. To imagine that p , on the other hand, does not involve any endorsement of p or commitment to p being true. We often form imaginings that we explicitly judge to be false, and we often engage in imaginative projects precisely *because* they represent scenarios that we do not believe to be true. For this reason, it has seemed obvious to many that imagination is not a form of belief; they are mutually exclusive kinds of mental states.

I will argue that this intuitive contrast between imagination and belief is too hastily drawn. Sometimes imagining just *is* a way of believing. More precisely, there are states

that are simultaneously imaginative in format (in that they involve mental imagery) and doxastic in attitude (in that they take the stance of belief towards their content). Call these *imaginative beliefs*. I will advance two arguments for the existence of imaginative beliefs: the functional argument and the epistemic argument. The core idea behind these arguments is that there are imaginings that play both the functional and epistemic roles of belief, and that this gives us both descriptive and normative grounds for positing imaginative beliefs. Moreover, I will argue that imaginative beliefs have important implications for theorizing about the nature and epistemology of both imagination and belief, and therefore that they should not be overlooked by philosophers of mind and epistemologists.

The paper proceeds as follows. §2 clarifies the concepts of imagination and belief. §3 and §4 defend the functional and epistemic arguments for imaginative beliefs. §5 argues against alternative views that posit distinct imaginative and doxastic states, rather than a single state that is both imaginative and doxastic.

2. Imagination and Belief

Representational mental states are a combination of *content*, *format*, and *attitude*. *Contents* are the truth or accuracy conditions of a representation. *Formats* are the ways in which representations encode their content. For example, photographs and sentences encode their content in different ways and thus instantiate different formats—the former is imagistic, and the latter is discursive.¹ *Attitudes* are ways of regarding a content, or the different “stances” that mental states take towards their content. They correspond to clusters of functional roles, and their associated success conditions.

¹ The terms ‘iconic,’ ‘analog,’ and ‘pictorial’ are sometimes used instead of ‘imagistic’ and the terms ‘symbolic’ and ‘sentential’ are sometimes used instead of ‘discursive.’ I’m using ‘imagistic’ quite broadly to mean anything that encodes its content in an image-like way, and I’m using ‘discursive’ quite broadly to mean any non-imagistic format.

Content, format, and attitude vary independently of each other. The dissociation between content and attitude is familiar. A belief that p and a belief that q have the same attitude but different contents, and a belief that p and a desire that p have the same content but different attitudes. Less familiar but no less important is the dissociation between format on one hand and content and attitude on the other. Consider the belief that *it is warm*. This belief could have a discursive format that encodes its content via the discrete concept WARM, or it could have an analog format that uses greater values along some physical magnitude to represent warmer temperatures.

Different psychological kinds correspond to different components of the format-content-attitude distinction. Locating belief and imagination in this landscape will help to clarify the thesis that there are imaginative beliefs.

Beliefs are a paradigmatic example of an attitudinal kind. While the exact nature of belief is a matter of extensive controversy, virtually no one denies that it is an attitude. This follows from the definition of attitudes given above: believing that p is a way of regarding p that plays certain functional roles and is associated with certain success conditions. Moreover, beliefs differ from other mental states in ways that cannot be captured by format or content. For example, a belief that p and a supposition that p both represent the same content with (we can assume) the same discursive format—they differ only in attitude.

By contrast, the concept of imagination does not correspond neatly to any one component of the format-content-attitude distinction. Imagination is a heterogeneous category (Kind 2013).

For my purposes, it is useful to distinguish between two different concepts of imagination.² The first is an attitudinal kind. Call this *attitude imagining*. While beliefs have a mind-to-world direction of fit and desires have a world-to-mind direction of fit,

² This distinction is borrowed from Van Leeuwen 2013 and Langland-Hassan 2020.

attitude imaginings are typically thought of as directionless and lacking intrinsic success conditions.³ They take no stand on the truth of their content. The functional role of attitude imaginings is such that they are “quarantined” or “disengaged” from online reasoning and behavior (Currie & Ravenscroft 2002, Nichols & Stich 2003). While believing that p typically causes one to reason and act as if p is true, attitude imagining that p is disconnected from belief-formation and action-guidance.

The second concept of imagination corresponds to a format kind. Call this *imagistic imagining*. Imagistic imaginings are any mental state that has an imagistic format.⁴ Imagistic imagination is not limited to the visual modality but also includes images in other sensory modalities. Although defining imagistic imagination in terms of imagistic format may make it sound like an esoteric phenomenon, imagistic imagination is a relatively common-sense psychological kind.⁵ Imagistic imagining is just what we do when we think in images. Examples of imagistic imagining include forming a visual image of a galloping horse or imagining the taste of roasted broccoli.

Attitude imaginings, by definition, cannot be beliefs. This would require the same state to be associated with two different and mutually incompatible sets of functional roles and directions of fit. By contrast, it is possible for imagistic imaginings to be beliefs. Imagistic format is not a way of regarding a content and does not entail anything about the functional role or direction of fit of a state that would preclude it from being a belief. The fact that imagistic imagining is a format kind while belief is an attitude kind opens up conceptual space for a single mental state to be both. From now on, unless I specify otherwise, I will use ‘imagination’ and its cognates to refer to imagistic imagination. The

³ An alternative account of attitude imagining holds that it represents contents as possible (Yablo 1993).

⁴ Some theorists, such as Arcangeli 2020, define imagistic imagination as a content kind rather than a format kind. Here is a counterexample. I could invent a new (non-imagistic) concept and stipulate that it has the same content as my mental image of a cat. The concept does not thereby become an imagistic imagining. Imagistic imagination is marked by the format in which it encodes content, rather than by the content itself.

⁵ The terms ‘sensory’ or ‘perceptual’ imagination are sometimes (but not always) used to pick out what I mean by ‘imagistic imagination’.

thesis that there are imaginative beliefs should be understood as the thesis that there are states with an imagistic format and a doxastic attitude.

We have a pre-theoretic grasp on the category of imaginative beliefs. They are what you might call *realistic imaginings*: imaginings that are undertaken with the aim of imagining accurately.⁶ Realistic imagining is a central way that imagistic imagination is used. Examples of realistic imaginings include imagining what the inside of your fridge currently looks like, imagining what it will be like to give a talk, and imagining what would occur if you hit a billiard ball at a certain angle. Realistic imaginings need not be accurate so long as they are carried out with the intention or goal of being accurate. Realistic imaginings also need not be aimed at the actual world. One might realistically imagine a non-actual counterfactual scenario.⁷

Before moving on, let me briefly distinguish my view from a similar view that has been proposed in the literature. In an article and a recent book, Peter Langland-Hassan (2015, 2020) argues for the existence of what he calls “judgment imaginings.” Judgments are occurrent beliefs, so judgment imaginings are occurrent imaginative beliefs. Although we both argue for the existence of imaginative beliefs, there are several important differences between our views.

First, there are substantive differences between Langland-Hassan’s notion of judgment imaginings and my notion of imaginative beliefs. While judgment imaginings are essentially occurrent, I will argue in §3 that there are non-occurrent imaginative beliefs. More importantly, Langland-Hassan holds that imagistic imaginings must be supplemented by a distinct non-imagistic state to be beliefs. By contrast, I will argue in §5 that imagistic imaginings can constitute beliefs without the help of any distinct non-imagistic state.

⁶ Realistic imagination is closely related to what Kind & Kung 2016 call ‘instructive imagination.’

⁷ For this reason, realistic imagination is distinct from what Munro 2021 calls ‘actuality-oriented imagination.’

Second, my argument for imaginative beliefs improves upon Langland Hassan's in important ways. Simplifying a bit, Langland-Hassan's argument proceeds as follows:

- (i) There are imaginings with a mind-to-world direction of fit.
- (ii) If a state has a mind-to-world direction of fit, then it is a belief.
- (iii) So, there are imaginings that are beliefs.

Langland-Hassan supports the first premise by appealing to examples. Suppose you are trying to imagine what the Arc de Triomphe looks like, so you form an imagistic imagining of a big stone arch (Langland-Hassan 2015). Intuitively, this imagining is successful just in case it accurately represents what the Arc de Triomphe looks like. It has a mind-to-world direction of fit. So far, so good. The trouble lies with the second premise. Not only does Langland-Hassan fail to give any reasons for thinking that it is true, but there are also obvious counterexamples.⁸ Consider perceptual experiences, episodic memories, guesses, acceptances, and hypotheses. All of these states have a mind-to-world direction of fit. But none of them are beliefs, nor do they entail belief.⁹ This is not surprising; directions of fit are relatively coarse-grained properties that abstract away from significant functional and normative—and therefore attitudinal—diversity. So, Langland-Hassan's argument for imaginative beliefs is unsound. My arguments proceed from a more fleshed out characterization of the functional and epistemic profile of belief that excludes other states with a mind-to-world direction of fit and thereby offers a more secure route to the conclusion that there are imaginative beliefs.

3. The Functional Argument for Imaginative Beliefs

⁸ Moreover, this premise is unlikely to be accepted by opponents of imaginative beliefs. For example, Stein 2021 agrees that imaginings can have a mind-to-world direction of fit but explicitly denies that they are beliefs.

⁹ Some philosophers hold that these states are beliefs. For example, Glüer 2009 argues that perceptual experiences are beliefs and Holguín 2022 argues that guesses are beliefs. However, they do not take mind-to-world direction of fit alone to establish this fact, indicating that they do not endorse the second premise of Langland-Hassan's argument.

In this section, I will defend the *functional argument* for imaginative beliefs. The core idea behind the functional argument is that realistic imaginings play functional roles that are constitutive of belief.

First, I need to say more about the functional roles of belief. While the details are controversial, working at a relatively high level of abstraction we can say that beliefs are evidence-sensitive, available for reasoning, and action-guiding.¹⁰ These functional roles are the functional core of belief. They closely track the ways that beliefs are invoked in both folk psychological and cognitive scientific explanation. Let me explain each of these functional roles in more detail.

Beliefs are sensitive to evidence. By evidence, I mean states that support or make more likely the content of the belief in question. What does it mean for a state to be *sensitive* to one's evidence? It needs to be a state that tends to be formed and revised in response to one's evidence.¹¹ If a subject believes that *p* and gets sufficiently strong evidence that *not-p*, they will tend to revise their belief.

Beliefs are available for reasoning. We can break down the functional role of beliefs in reasoning into two parts. First, the kinds of inferences that beliefs feature in have distinctive structures. They include theoretical inferences, in which beliefs combine with other beliefs to produce new beliefs, and practical inferences, in which beliefs combine with desires to produce intentions to act. Second, beliefs are *widely* available for reasoning.¹² Beliefs can serve as premises in many different inferences. A belief that is inferentially isolated from the rest of a subject's mental states is not a belief at all, since it will not guide reasoning in the ways that are constitutive of belief.

¹⁰ These functional roles (or close analogs of them) have been widely appealed to in the literature on the nature of belief. See Egan 2008, Gendler 2008, Glüer & Wikforss 2013, Loar 1981, Schwitzgebel 2002, Shah & Velleman 2005.

¹¹ See Helton (2020) and Flores (forthcoming) for different but related conceptions of evidence-sensitivity.

¹² This property is sometimes labeled 'inferential promiscuity' (Stich 1978)

Finally, beliefs are action-guiding. Beliefs, in conjunction with desires, produce behavior. For example, if I desire water and believe that there is water in the kitchen, then all things being equal I will walk to my kitchen and pour myself a glass of water. We behave as if our beliefs are true, given our desires. This property of beliefs is easily motivated by the way in which we invoke beliefs to explain behavior. The fact that I walk to my kitchen is explained by the fact that I believe that there is water in the kitchen. The action-guiding role of beliefs extends to linguistic behavior. For example, the same belief explains why I assert that “there is water in my kitchen.”

Beliefs are disposed to play these functional roles, but they do not invariably do so. Humans are not perfectly rational, and sometimes form beliefs against their evidence. Beliefs may admit of some degree of inferential isolation. And we sometimes choose to act and assert in ways that go against our beliefs. These facts are compatible with evidence-sensitivity, availability for reasoning, and action-guidance picking out the functional core of belief.

Exactly how these functional roles are related to the nature of belief is a matter of some controversy. According to functionalist accounts of belief, the attitude of belief is constituted by a set of functional roles. Many functionalist accounts appeal to the three functional roles explicated here (or close analogs of them). On these views, a belief is any state that is evidence-sensitive, available for reasoning, and action-guiding. However, even non-functionalists will typically admit that these functional roles, taken together, are a good marker of belief. Beliefs tend to play these functional roles, even if their nature lies elsewhere. So long as these functional roles are a marker of belief, then the functional argument for imaginative beliefs has dialectical force.

Realistic imaginings play each of the three functional roles associated with belief. Consider the following case:

Leftovers: Madelyn made a big batch of butternut squash soup for dinner, and she is trying to choose which container to store her

leftovers in. She chooses a large container and imagines pouring the leftover soup into it. She imagines all the soup fitting comfortably into the container. Madelyn concludes that the soup will fit in the container.

Madelyn's imagining is informed by a wide swath of evidence: her perception of how much soup is left in the pot, her memories of how large the container is, and her background beliefs about how liquid tends to fill up containers. Moreover, her imagining is counterfactually sensitive to her evidence. If her evidence had been different, then the content of her imagining would be relevantly different. Suppose that before initiating her imaginative project Madelyn gained new evidence that there is more soup left in the pot than initially appeared (perhaps by looking at it from a different angle). In this counterfactual scenario, Madelyn would imagine more soup than in the non-counterfactual scenario described in *Leftovers*. More generally, since realistic imaginings are formed with the goal of representing accurately, they will tend to be sensitive to evidence that is relevant to their subject matter.

Madelyn's imagining is also widely available for reasoning. *Leftovers* involves both an aspect of theoretical reasoning, as evidenced by the fact that Madelyn forms the belief that the soup will fit into the container, and an aspect of practical reasoning, as evidenced by the fact that Madelyn's imagining is being used to guide which container she will choose, given her desire to store the leftover soup. In addition, it is rich with content and Madelyn can form many different beliefs or intentions on its basis. For example, Madelyn can infer that the soup will fill less than three quarters of the container, or that the soup is likely to splatter upon being poured, or that the color of the soup is several shades darker than the color of the container, all based on this same imagining. More generally, realistic imaginings are personal-level states that are globally and flexibly accessible for entering into many chains of reasoning, depending on the goals and interests of the reasoner.

Finally, Madelyn's imagining is action-guiding. Just as a belief that p causes one to act as if p is true, Madelyn's imagining that the soup will fit in the container causes her to behave as if the soup will fit in the container. Her imagining is what causes her to reach for the specific container that she does. It may also guide some of the fine-grained motor control that Madelyn engages in, such as how she pours the soup and when she stops pouring. Finally, her imagining guides and explains her linguistic assertions. For example, upon imagining that the soup will fit into the container, she might say to her dinner companion, "The soup will fit in this container!"

Madelyn's imagining is not exceptional amongst realistic imaginings in the fact that it plays these three functional roles. For example, I might realistically imagine the flavors of two ingredients at the same time to figure out whether those ingredients would go well together in a dish. This imagining is sensitive to my evidence about what those ingredients taste like and goes on to guide which ingredients I put into the dish I am cooking. Similarly, I might imagine my kitchen. This imagining is sensitive to my evidence about what my kitchen looks like, and can go on to guide my reasoning about, for example, how many cabinets are in my kitchen.

The fact that realistic imaginings play the functional roles of belief is best explained by the thesis that realistic imaginings *are* beliefs. Madelyn's imagining that the soup will fit into the container just *is* a belief that the soup will fit into the container.¹³ Similarly, my realistic imagining of the flavors of two ingredients is a belief that those two ingredients taste a certain way and my realistic imagining of the front of my kitchen is a belief about what my kitchen looks like.¹⁴

¹³ Strictly speaking, 'that the soup will fit in the container' is merely a useful paraphrase of the content of Madelyn's imagining. Its actual content is plausibly much more informationally rich and characterizes how a complex spatial array will evolve over time. I will return to this issue in §4.

¹⁴ *Leftovers* involves the formation of a new imaginative belief. Madelyn starts as agnostic about whether the soup will fit into the container, and only once she completes her imaginative project does she make up her mind. By contrast, realistically imagining what my kitchen looks like plausibly involves the expression of a previously held belief, rather than the formation of a new belief.

Evidence-sensitivity, availability for reasoning, and action-guidance carve off realistic imagining from other uses of the imagination as a distinctive cognitive kind. For example, imaginative daydreams are marked precisely by their insensitivity to evidence and their disconnection from reasoning and action. Imaginative engagement with pretense is typically sensitive to the content of the pretense and guides reasoning and action *within* the pretense. However, this limitation indicates that it is evidentially and inferentially isolated in a way that is incompatible with outright belief.¹⁵

There may be borderline cases in which imaginings only play some of these functional roles. For example, I might form an imagining that guides my reasoning and action but is only sensitive to a selective portion of my evidence. Or, I might daydream in a way that is sensitive to my evidence but is not disposed to guide my theoretical or practical reasoning. This is no objection to the thesis that realistic imaginings involve the attitude of belief, because it is independently plausible that belief admits of borderline cases. Consider implicit attitudes, delusions, and religious convictions. Each of these mental states is importantly similar to but also different from clear, paradigmatic cases of belief, and there is considerable controversy over whether each of these mental states is correctly thought of as a kind of belief.¹⁶ We should expect the concept of belief to exhibit the same level of vagueness regardless of its format.¹⁷

¹⁵ Episodic memory involves mental imagery. Moreover, episodic memory is typically sensitive to your past experiences, and goes on to guide reasoning and action. Do episodic memories thereby count as imaginative beliefs? Some theorists, notably Langland-Hassan (2020 p. 67), embrace this conclusion. However, one reason to be doubtful is that memories can persist in the face of countervailing evidence. Suppose I have a strong and vivid memory of my uncle being present at my 13th birthday party. When I bring this up to my mother, she vehemently denies this, and produces photographic proof that my uncle was not in fact at my 13th birthday party. Despite having strong evidence that my uncle was not present, I continue to have a vivid memory that he was. So, it is plausible that episodic memory is not evidence-sensitive in the relevant way.

¹⁶ On implicit attitudes, see Mandelbaum 2016 for a belief view, and Madva 2016 for a non-belief view. On delusions, see Bortolotti 2009 for a belief view and Currie & Ravenscroft 2002 a non-belief view. On religious convictions, see Levy 2017 for a belief view and Van Leeuwen 2014 for a non-belief view.

¹⁷ See Schwitzgebel 2001 for further discussion of borderline cases of belief.

At this point, one might object that there are functional differences between imagination and belief that preclude a single mental state from being both. I'll consider two objections of this form. First, imaginings are occurrent while beliefs are non-occurrent. Call this the *occurrent state objection*. Second, imaginings are voluntary while beliefs are involuntary. Call this the *voluntary control objection*. I will explain and respond to each objection in turn.

According to the occurrent state objection, imaginings are essentially occurrent while beliefs are essentially non-occurrent.¹⁸ Put roughly, the idea is that imaginings only persist for as long as they are “before the mind” while beliefs persist even when they are not occupying one’s thoughts. One does not cease to believe some proposition when they stop entertaining it, but one does cease to imagine when they no longer have a mental image. This amounts to a functional disanalogy between imaginings and beliefs, thereby undermining the functional argument.¹⁹

I have two distinct but compatible responses to this objection. First, there are occurrent beliefs. You probably believe that the Earth orbits the Sun. Before reading the last sentence, your belief was non-occurrent. But, presumably, reading that sentence made your belief occurrent—it manifested in a conscious mental episode. Although there may be functional differences between occurrent and non-occurrent beliefs, these functional differences do not suffice for a difference in attitude. So, we can avoid the occurrent state objection by holding that imaginative beliefs are a form of occurrent belief.

Second, it is plausible that there are non-occurrent imaginative beliefs. Non-occurrent imaginative beliefs are beliefs that are stored in an imagistic format, although

¹⁸ A related worry is that imaginings are dynamic episodes while beliefs are static states. However, not all imaginings are dynamic. For example, I can form a static visual image of my bedroom. Moreover, even dynamic episodes have content that one can take the attitude of belief towards. Madelyn believes that things will evolve over time in a way captured by the content of her imaginative episode. The fact that her imagining has temporal content is no barrier to it being a belief.

¹⁹ See Bartlett 2018 for a critical overview of different accounts of the occurrent/non-occurrent distinction.

they are not currently being accessed and therefore do not manifest in an occurrent imaginative episode. For example, if you have been in your kitchen many times, then you probably have many stored imagistic representations of what your kitchen looks like. These stored imagistic representations are sensitive to your evidence and go on to guide your reasoning and behavior in the ways that are constitutive of belief. Moreover, they ground stable dispositions to form certain occurrent realistic imaginings, in much the same way that non-occurrent beliefs ground stable dispositions to form certain occurrent beliefs. For these reasons, it is plausible that you have a non-occurrent imaginative belief about what your kitchen looks like even if you are not occurrently imagining your kitchen. More generally, format crosscuts the occurrent/non-occurrent distinction. For example, non-imaginative beliefs have the same format regardless of whether they are occurrent or not. Similarly, we should not expect the imagistic format of a mental state to preclude it from being non-occurrent. If information can be occurrently represented in an imagistic format, then in principle it can be non-occurrently stored in that same format.²⁰

According to the voluntary control objection, imaginings cannot be beliefs because imaginings are essentially voluntary while beliefs are essentially involuntary. This is one of the most influential and widely endorsed objections to the existence of imaginative beliefs.²¹ The idea is intuitive enough: while I can imagine any content that I want to, I cannot simply believe any content that I want to. This amounts to a difference in backwards-facing functional roles—intentions can directly cause imaginings but cannot directly cause beliefs—thereby undermining the functional argument for imaginative beliefs.

²⁰ There is suggestive empirical evidence that imagistic states such as cognitive maps (Epstein et al. 2017) and sensory states (Winkler & Cowan 2005, Brady et al. 2008) are stored non-occurrently in long-term memory.

²¹ See McGinn 2004, who says that “imagining is subject to the will, while believing is not” (p. 132) and Spaulding 2015, who says that “imagination is subject to conscious, voluntary control, whereas belief is not” (p.459). Both theorists use this disanalogy to argue that imaginings cannot be beliefs.

A first-pass response is that not all imaginings are voluntary. A common example is when a catchy song is “stuck in one’s head,” resulting in an involuntary auditory imagining. This imagining is involuntary *and* plays the functional roles of belief. It is constrained by one’s evidence about what the song sounds like and is available to guide one’s reasoning about, for example, what chord progression is used in the chorus of the song. Thus, there is a robust class of involuntary realistic imaginings to which the voluntary control objection does not apply.

Although this response would be enough for my purposes, it still does not capture many of the central, paradigmatic examples of realistic imaginings. Madelyn’s imagining, for example, is voluntarily initiated. She *chooses* to imagine pouring the soup into the container. So, a more comprehensive response to the voluntary control objection is needed.

An analogy between imagistic thought and non-imagistic thought is helpful here. Non-imagistic thought is typically voluntary. One can non-imagistically think about whatever one wants to. Some non-imagistic thoughts are beliefs. However, one cannot choose which non-imagistic thoughts are beliefs. For example, I can choose to think the non-imagistic thought that *it is raining outside* whenever I want to. But this thought will only count as a belief if it is sensitive to my evidence about the weather and is disposed to guide my theoretical and practical reasoning. Whether my thought plays these functional roles is not up to me. So, it is simultaneously possible for the content of non-imagistic thought to be voluntary but for the attitudes associated with those contents to be involuntary.

Imagistic thought is exactly analogous to non-imagistic thought in this respect. One can imagistically think about whatever one wants to, but one cannot choose which of those imagistic thoughts are beliefs. Whether or not an imagistic thought plays the functional and epistemic roles that are constitutive of belief is not under voluntary

control, even if the content of imagistic thought in general is.²² Thus, the fact that you can imagine anything you want to is compatible with imaginative belief being involuntary. In this respect, there is functional parity between imagistic and non-imagistic thought.

Let us apply this observation to *Leftovers*. Madelyn can imagine whatever she wants—she can choose to imagine the leftover soup overflowing the container or she can choose to imagine it fitting comfortably inside the container. What she cannot do is imagine the soup overflowing the container while maintaining her imagining's connections to evidence, reasoning, and action. She can choose what to imagine, but she cannot choose which of those imaginings are beliefs. Given that Madelyn is engaged in realistic imagination and is therefore in the business of forming imaginative beliefs, the content of her imagining is not up to her. So, the voluntary control objection fails.

4. The Epistemic Argument for Imaginative Beliefs

In this section, I will defend the *epistemic argument* for imaginative beliefs. The crux of the argument is that the epistemic role of the realistic imagination is best explained by positing imaginative beliefs. The argument comes in two parts. First, imaginings must have assertoric force to justify belief. Second, belief is the assertoric attitude that best explains the epistemic structure of the imagination.

Realistic imaginings can, under certain conditions, confer justification. Since this thesis has already been defended at length in the literature on the epistemology of imagination, I will not spend much time defending it here.²³ For now, I will just point out how plausible it is that, in *Leftovers*, Madelyn's non-imaginative belief that the soup will fit into the container is epistemically justified because of her imagining.

²² Langland-Hassan 2016 and Williamson 2016 have also appealed to the idea that imagination can operate in an involuntary, evidence-sensitive mode in response to the closely related objection that the voluntary nature of the imagination undermines its epistemic relevance.

²³ See Dorsch 2016, Kind 2016, 2018, Miyazono & Tooming 2023, Myers 2021, 2023, and Williamson 2016.

A representational state has *assertoric force* when it represents its content as true.²⁴ Beliefs, perceptions, and memories are examples of states with assertoric force. When one believes that p , one does not merely entertain the content that p without taking any stand on its truth. Instead, believing that p is committal about the truth of p . Beliefs assert rather than merely noncommittally express their content.²⁵ By contrast, desires and suppositions do not have assertoric force. They represent without taking a stand on the truth of their content.

Imaginings must have assertoric force to justify belief. This follows from a more general principle, which we can call the *assertoric force condition*. The *assertoric force condition* says that for a representational state to non-inferentially justify a belief that its content is true, it must represent its content with assertoric force.²⁶ Intuitively, a mental state that is not committal about what the world is like cannot non-inferentially justify a belief about what the world is like. For a mental state to count as evidence in favor of believing that p is true, it must represent p as true. Since desires and suppositions do not represent their contents as true, they cannot count as evidence in favor of their contents being true. By contrast, perception is a paradigmatic example of a state that has assertoric force. Perceiving that p represents that p is true, which is precisely why it can count as a consideration in favor of believing that p . These intuitive considerations support the assertoric force condition on justification.

²⁴ Only states with propositional (i.e. truth-evaluable) content can have assertoric force. I will defend the claim that imaginative content is propositional in §5.3. There may, however, be non-propositional analogs of assertoric force. For example, it is plausible that non-propositional states can represent their contents as actualized, or as existing, even if they cannot represent their contents as true.

²⁵ It is compatible with a state's having assertoric force that one does not all-things-considered judge its content to be true. For example, in cases of known illusions, one perceives that p with assertoric force but does not judge that p is true.

²⁶ I restrict the assertoric force condition to non-inferential justification because it is possible for a non-assertoric state to play a justificatory role in tandem with a subject's background beliefs.

Importantly, the assertoric force condition merely states a necessary condition on justificatory force. Assertoric force is not sufficient for a mental state to have justificatory force. Unjustified beliefs, for example, have assertoric force but lack justificatory force.

If some imaginings can non-inferentially justify beliefs, and only states with assertoric force can non-inferentially justify beliefs in their content, then it follows that at least some imaginings have assertoric force.²⁷ This is already a significant result. Many theorists hold that imaginings necessarily lack assertoric force. For example, Tucker states that “imagined images lack assertiveness” (2010, p. 533) and McGinn takes it as obvious that imaginings “do not purport to tell us how the world is” and “are neutral about reality” (2004, p. 21). An adequate epistemology of the imagination shows that these views are mistaken. To make sense of the justificatory role of the imagination, we must countenance imaginings with assertoric force.

This argument only establishes that *some* imaginings have assertoric force. It is compatible with the epistemic argument that many imaginings lack assertoric force. The idea that some imaginings have assertoric force while others lack it is independently plausible. Realistic imaginings aim to represent the world accurately, and thus represent their content as true. But, non-realistic imaginings, such as those involved in pretense or daydreams, have no such aim, and thus lack assertoric force.

Because assertoric force is necessary but not sufficient for justificatory force, it is also compatible with this argument that some realistic imaginings have assertoric force but lack justificatory force. This is a plausible description of realistic imaginings that are informed by poor evidence. For example, a realistic imagining that is sensitive to unjustified beliefs plausibly still purports to represent the world accurately, even if it fails to confer justification.

²⁷ Teng (2021) briefly makes a similar argument.

So far, I have argued that realistic imaginings have assertoric force. This does not yet establish that realistic imaginings are beliefs. We have already seen that many attitudes have assertoric force besides belief. I will now argue that belief is the assertoric attitude that best explains the epistemic role of the realistic imagination.

Here is a truism about the epistemic structure of belief: beliefs confer justification in virtue of being epistemically based on good evidence and therefore manifesting a positive epistemic status. I will argue that realistic imaginings exhibit the same epistemic structure.

Realistic imaginings only confer justification when they are epistemically based on good evidence.²⁸ In *Leftovers*, Madelyn's imagining only justifies her belief that the soup will fit into the container if her imagining is based on good evidence about the size and shape of the container and the volume of the soup. If her imagining were instead based on wishful thinking and irrational optimism about how much soup she can fit into the container, then it would not confer justification. More generally, realistic imaginings are only as epistemically good as the evidence they are based on.

One might concede that imaginings can be causally sensitive to evidence but wish to resist the idea that imaginings can be *epistemically based* on evidence. There is little agreement about the nature of the epistemic basing relation, and I will not take a stand on this thorny issue here.²⁹ However, on any plausible view of basing, it involves responding to evidence in virtue of the epistemic support that it provides (and not, for example, as an involuntary reflex).³⁰ Realistic imaginings satisfy this description. They are sensitive to evidence not as a brute causal fact, but precisely in virtue of the fact that

²⁸ I develop similar ideas in Myers 2021, although there I stop short of endorsing the existence of imaginative beliefs.

²⁹ Most theorists take the basing relation to involve causation (Armstrong 1973, Moser 1989). Some theorists invoke further constraints on basing, such as a higher-order representation of the basis as justifying or supporting the state that is based (Leite 2008, Boghossian 2014).

³⁰ See Jenkins 2020 p. 260 for further discussion.

it offers epistemic support for the content of the imagining. If I am trying to realistically imagine what my kitchen looks like, then my imagining is causally sensitive to my beliefs and memories about my kitchen precisely because they give me epistemic reasons for thinking that my kitchen looks a certain way. If my evidence supported a different conclusion about what my kitchen looks like, then my imagining would be sensitive to that difference in epistemic support, given my goal to imagine realistically.

Moreover, realistic imaginings are epistemically evaluable in the way that is characteristic of belief. Plausibly, this follows from the thesis that they can be epistemically based on evidence. When a state is epistemically based, it can be epistemically evaluated as having an adequate basis or not. So, we can epistemically evaluate realistic imaginings according to the strength of their evidential basis. But it is also independently plausible that realistic imaginings are epistemically evaluable. Consider the case in which Madelyn lets wishful thinking and irrational optimism influence how her imagining unfolds. Intuitively, there is something epistemically deficient about this imagining. The thesis that there are imaginative beliefs gives us the resources to say what it is. Her imagining, in virtue of being a belief that goes against her evidence, is epistemically unjustified. Not only are realistic imaginings epistemically evaluable, but epistemic subjects can be held epistemically responsible for their realistic imaginings. One might rightly criticize Madelyn for basing her imagining on irrational optimism rather than her evidence about the volume of the container. We can explain why it is appropriate to invoke epistemic blame by holding that realistic imaginings are beliefs. The opposing, orthodox view that realistic imaginings are attitude imaginings cannot explain these patterns of normative evaluation, since attitude imaginings, in virtue of having no direction of fit, are not epistemically evaluable and therefore do not implicate epistemic responsibility.

One might object that positing imaginative beliefs cannot explain the epistemic role of the imagination because it makes the justification conferred by the imagination

circular. If Madelyn's imagining just *is* a belief that the soup will fit into the container, then how can it go on to justify a belief that the soup will fit into the container? Call this the *circularity objection*. Getting more precise about the contents of imaginative and non-imaginative beliefs defuses this worry. The imagistic format of Madelyn's imagining ensures that its content will not be the same as the non-imaginative belief it justifies. Although you could roughly gloss the content of Madelyn's imagining as that *the soup will fit into the container*, this is merely a useful paraphrase. Its actual content is much richer and more fine-grained. Madelyn's imagining represents a complex spatial array of properties that evolves over time. Madelyn's non-imaginative belief does not capture this rich spatiotemporal array. Instead, it simply expresses the proposition that *the soup will fit into the container*. Since the contents of the two states are distinct, there is nothing circular about Madelyn basing her non-imaginative belief on her imaginative belief.³¹

I have argued that the attitude of belief best characterizes the epistemic structure of the imagination. While many theorists are happy to accept that imaginings can justify beliefs, most would balk at the idea that imaginings are *themselves* beliefs. I've argued that we need the latter to explain the former. Theorizing about the epistemology of imagination cannot proceed independently of theorizing about its nature.

5. The Two-State Objection

A popular objection to the existence of imaginative beliefs holds that we can explain the functional and epistemic roles of the realistic imagination by positing distinct imaginative and doxastic states, rather than a single state that is both imaginative and doxastic. On this view, realistic imaginings are not themselves beliefs, but they can guide action and confer justification when they are appropriately connected to a subject's (non-

³¹ Imaginative and non-imaginative beliefs have representational trade-offs, and this explains why it can often be useful to have both. For example, while Madelyn's imaginative belief captures a richly structured spatiotemporal array at little representational cost, her non-imaginative belief is composed of discrete concepts that allow for logical inference. See Camp 2007 for further discussion of the advantages and disadvantages of different representational formats.

imaginative) beliefs. We can call this the *two-state objection*, because it carves realistic imaginings into two states: an imagining and a belief.

The burden is on the proponent of the two-state objection to explain what the content of the relevant non-imaginative beliefs are and how those non-imaginative beliefs explain the functional and epistemic roles of the realistic imagination. In what follows, I will consider three different ways of filling in these details and argue that each version of the two-state objection fails. I do not claim that realistic imaginings are *never* associated with non-imaginative beliefs. This is too strong for my purposes. Instead, I will argue that realistic imaginings do not need to be supplemented by non-imaginative beliefs to play the functional and epistemic roles that gave us reason to posit imaginative beliefs in the first place.

5.1 The Metacognitive Two-State View

The first version of the two-state objection holds that realistic imaginings are accompanied by metacognitive beliefs about their accuracy or reliability, and that these metacognitive beliefs explain the functional and epistemic roles of the realistic imagination. We can call this the *metacognitive two-state view*. On this view, Madelyn's imagining of the soup fitting into the container is accompanied by a distinct non-imaginative belief that *this imagining is likely to be accurate*. Since this metacognitive belief affirms the accuracy of the imagining, it is plausible that it would regulate the functional roles of the imagining itself such that it comes to guide reasoning and behavior in the way characteristic of belief. And by affirming the accuracy of the imagining, this metacognitive belief can go on to justify beliefs about the content of the imagining. The most notable proponent of the metacognitive two-state view is Dorsch, who claims that the epistemic role of the imagination depends on "beliefs about the accuracy of...our imaginative experience" (2016 p. 102).³²

³² See also McGinn, who claims that "if [imaginings] are to have any reality-affirming force, we must *take them to be veridical*" (2004 p. 21, italics added for emphasis).

However, the metacognitive two-state view overintellectualizes the realistic imagination. It requires subjects to reflect on the accuracy of their own imaginings and then to deploy the concepts of IMAGINATION and ACCURACY or RELIABILITY. As a result, this view entails that subjects who do not possess sophisticated conceptual and metacognitive capacities, such as animals and young children, are not able to rely on realistic imaginings to guide their reasoning and action. But this is false. There is extensive empirical evidence that infants and young children, as well as some non-human animals, can use their imagination to successfully plan actions, solve problems, and form beliefs.³³ The fact that they are able to do so in the absence of sophisticated conceptual and metacognitive capacities entails that at least some realistic imaginings are not accompanied by a metacognitive belief.³⁴

Moreover, adult humans often engage in realistic imagination unreflectively. Madelyn might immediately act on her imagining without reflecting on how likely it is to be accurate or considering her past track record of similar imaginative projects. Even without undertaking this additional step, her imagining is still sensitive to her evidence and goes on to guide her reasoning and behavior. More generally, we sometimes accept our imaginings at face value.³⁵ Of course, we also sometimes form metacognitive beliefs about our imaginings. If the stakes are high for Madelyn, then she may want to reflect on

³³ For evidence of realistic imagination in children, see Ornkloo & von Hofsten 2007, Moore & Johnson 2011, Frick & Möhring 2013, and Johnson & Moore 2020. For evidence of realistic imagination in animals, see Mauck & Dehnhardt 1997 and Stich et al. 2003 on sea lions, Köhler et al. 2005 on rhesus monkeys, Lai et al. 2023 on rats, Hamm, Matheson, & Honig 1997 and Neiworth & Rilling 1987 on pigeons, and Blaisdell 2019 for an overview.

³⁴ See Carruthers 2008 for a skeptical appraisal of evidence for metacognition in animals.

³⁵ One might object that the attitude of accepting our imaginings at face value is already a metacognitive belief. However, whether this vindicates the metacognitive two-state view depends on what this attitude consists in. If we construe it quite minimally such that whenever your imagination guides your reasoning and behavior you count as accepting your imagination at face value, then this attitude cannot explain *why* the imagination plays those roles. But if we construe it more maximally to involve a distinct, conceptually structured state, then it faces the same challenge regarding overintellectualization.

her imaginative project and consider how likely it is to be accurate before acting on it. But this extra step is not necessary for her imagining to guide her reasoning and action.

One might object that even if a positive metacognitive belief is not necessary for realistic imagination, a negative metacognitive belief can cause one to disbelieve the content of the realistic imagination, thereby indicating that realistic imagination and belief are distinct states. For example, suppose that Madelyn knows that she tends to overestimate the capacity of her containers, and that her past track record of relevantly similar imaginative projects is not good. She may then realistically imagine that her leftovers will fit in the container, but distrust this imagining and thus fail to believe that her leftovers will fit. However, in this case, the negative metacognitive belief acts as a defeater that stops the imagining from playing the functional and epistemic roles of belief. Since by Madelyn's own lights her imagining is not trustworthy, she will not rely on it to guide her reasoning and behavior. Analogously, one might non-imaginatively judge that p , but form the metacognitive belief that this judgment is unreliable and thereby cease to believe it. On my view, negative metacognitive beliefs preclude imaginings from being beliefs by modulating the functional and epistemic roles of the imagining itself, and not by modulating the formation of some distinct doxastic state.

5.2 The First-Order Two-State View

The second way of fleshing out the two-state objection holds that the functional and epistemic roles of the realistic imagination can be explained by a distinct non-imaginative belief that recapitulates the content of the imagining. We can call this the *first-order two-state view* since it posits a belief about the subject matter of the imagining and not about the imagining itself. On this view, Madelyn simultaneously imagines that the soup will fit into the container and non-imaginatively believes that the soup will fit into the container. This explains the functional and epistemic roles of the realistic imagination because it holds that the content of the imagination is copied by a non-imaginative belief that can then go on to play the relevant functional and epistemic roles.

The first-order two-state view is subject to a dilemma. The putative non-imaginative first-order belief must be either formed (i) subsequent to the imagining or (ii) antecedent to the imagining. Both options are problematic.

Wiltsher (2019) is naturally interpreted as endorsing the first horn of this dilemma. He rejects the existence of imaginative beliefs by arguing that “judgments are separate acts from the imaginative states delivering material for judgment” (p. 459). However, if the putative non-imaginative belief is based on and therefore subsequent to the imagining, then it cannot explain the functional or epistemic roles of the imagining itself. A theory of realistic imagination must explain its role in belief formation. A belief that is based on the imagination merely restates the datum to be explained, rather than explaining *why* realistic imaginings cause beliefs.

The second horn of the dilemma says that whenever one realistically imagines that *p*, one already (non-imaginatively) believes that *p*. Spaulding (2016) can be read as endorsing this horn of the dilemma when she argues that imaginings can only yield knowledge when supplemented with prior “theoretical knowledge pertaining to the particular subject matter” of the imagining (p. 221). However, this horn is independently implausible. First, it is introspectively dubious that one always antecedently believes what they realistically imagine. Madelyn is genuinely unsure about whether the soup will fit into the container at the time that she initiates her imaginative project. She initiates her imaginative project precisely because she wants to find an answer to this question. Her imagining involves the formation of a new belief, rather than the expression of a previously held belief. Second, this horn of the dilemma is unable to explain the epistemic role of the imagination. Realistic imaginings, when they are properly based on good evidence, can justify non-imaginative beliefs about what is imagined. Madelyn’s imagining of the soup fitting into the container justifies her non-imaginative belief that the soup will fit into the container. But, on the present suggestion, she must already hold this non-imaginative belief for her imagining to have justificatory force in the first place.

This implausibly entails that imaginative justification is circular; Madelyn's non-imaginative belief that the soup will fit into the container justifies itself.³⁶

Since neither horn of the dilemma can explain the functional and epistemic roles of the realistic imagination, the first-order two-state view should be rejected.

5.3 The Gappy Two-State View

The final way of fleshing out the two-state objection is to hold that realistic imaginings fill in a predicative gap in the content of a distinct non-imaginative belief. Kaplan (1968) puts this view nicely:

Many of our beliefs have the form: 'The color of her hair is ____', or 'The song he was singing went ____', where the blanks are filled with images, sensory impressions, or what have you, but certainly not words. If we cannot even say it with words but have to paint it or sing it, we certainly cannot believe it with words. (p. 208)

Langland-Hassan agrees with Kaplan, stating that "imagination involves both iconic and discursive elements working in tandem," (2015 p. 682) such that "non-imagistic elements of thought combine with mental images to form [imaginings] with complex contents..." (2020 p. 90). These complex contents are such that "images assign properties to an object that is determined by an element of content outside of the image, with images playing a predicative role" (2020 p. 82).³⁷ In other words, realistic imaginings are composed of a

³⁶ This is importantly different from the circularity objection considered in §4. That objection was motivated by the idea that it is circular to base a non-imaginative belief on an imaginative belief with similar content, while the present objection to the first-order two-state view hinges on the much more troubling worry that it is circular to base a non-imaginative belief on itself.

³⁷ Van Leeuwen considers, but stops short of endorsing, the gappy two-state view, saying that "imagery is involved in many beliefs, *possibly as a constituent of a larger structure*" (Van Leeuwen 2013 p. 222, italics added for emphasis).

gappy non-imaginative belief and an imagining that fills the predicative gap. We can call this the *gappy two-state view*.³⁸

The primary motivation of the gappy two-state view is that imagistic states on their own are not evaluable for truth. Imagistic imaginings, the idea goes, do not refer, and therefore a distinct non-imagistic state is needed to establish reference. However, this motivating idea is false. Images can express truth-evaluable content without the help of a separate non-imagistic state. A non-mental example is instructive. Consider a photograph of Niagara Falls. This photograph is truth-evaluable. Roughly, it attributes a complex and fine-grained spatial array of colors to a particular scene (namely, to Niagara Falls). This photograph is true just in case Niagara Falls instantiates the colored array that it predicates. But how does this photograph come to refer to Niagara Falls? The array of colors that it represents could in principle be attributed to *any* scene, and there is no intrinsic feature of the photograph itself that secures reference to Niagara Falls. The answer, of course, is that the photograph refers to Niagara Falls because of its causal history. There is no principled sense in which this referential content can correctly be described as non-imagistic. After all, photographs are a paradigm of imagistic representation and they all come to refer in precisely this way. The photograph does not fill in a gap provided by some distinct non-imagistic representation. It expresses a complete, truth-evaluable content on its own.

Imaginings are importantly different from photographs in many ways. But photographs act as a proof of concept—imagistic representations can express truth-evaluable content without needing to be supplemented by a non-imagistic state. This alone undermines any reason to think that, in principle, imagistic imaginings must be

³⁸ Some proponents of this view might resist describing it as positing two separate states and instead hold that it posits a single state with both imagistic and non-imagistic formats. I do not wish to engage in a verbal dispute over the word 'state.' The substantive point of disagreement is over whether we need a non-imagistic format component.

supplemented by a non-imagistic belief to express propositional content. Moreover, it is plausible that mental images are broadly analogous to photographs insofar as their referential content is determined by their causal history. In *Leftovers*, Madelyn's imagining refers to the soup in virtue of the fact that it is caused by the soup in the right way. Granted, the causal chains connecting imaginings to their referents will often be more complex than the causal chain connecting photographs to their referents. For instance, in many paradigmatic cases, the causal connection between imaginings and their referents is mediated by an intention to imagine a certain object. But the complexity of the causal chain does not undermine the general point that imaginings themselves can refer and thus be evaluated for truth.³⁹ Much more would have to be said to comprehensively defend a causal account of imaginative reference. It is enough that the coherence and plausibility of this view shift the burden back to the proponent of the gappy two-state view to justify why we must invoke a distinct non-imagistic state when imagistic imaginings alone suffice for propositional content.

6. Conclusion

I have argued that there are imaginative beliefs: states that are imaginative in format and doxastic in attitude. I put forward two arguments for this conclusion. The functional argument hinged on the fact realistic imaginings play functional roles that are constitutive of belief—they are evidence-sensitive, available for reasoning, and action guiding. The epistemic argument hinged on the fact that realistic imaginings play the epistemic role of belief—they confer justification when they are epistemically based on good evidence. Together, these arguments give us both descriptive and normative grounds for positing imaginative beliefs. Along the way, I responded to the occurrent

³⁹ An image's causal history is not always decisive in determining its referent. For example, one can use a mental image of the sandwich that one ate last week and use it to refer to the sandwich that one will eat for lunch today. The fact that non-imagistic beliefs and intentions can sometimes override the causal history of an image in determining its referent is compatible with the claim that they are not necessary for imagistic reference.

state, voluntary control, and circularity objections. I also considered and rejected a family of alternative views according to which realistic imaginings involve distinct imaginative and doxastic states.⁴⁰

Imaginative beliefs have many important theoretical implications for philosophy of mind. I have already explored some of them: they pose a challenge for standard taxonomies of the mind, clarify the sense in which the imagination is voluntary and occurrent, explain the epistemic role of the imagination, and point to a deep but underappreciated symmetry between imagistic and non-imagistic thought.⁴¹ To close, let me just briefly mention two more.

First, the existence of imaginative beliefs should caution us against theorizing about imagistic imagination as a monolith. Recreativism, a popular and influential theory of imagination, holds that imagistic imaginings are offline perceptions—perceptual representations that are disconnected from their typical functional roles in guiding belief-formation and behavior.⁴² While this is certainly true of imaginative daydreams or fantasies, we have already seen that imaginative beliefs are engaged in precisely these functional roles. The imagistic imagination is used in myriad different ways, and we should be open to the possibility that these different uses correspond to fundamentally different cognitive and attitudinal kinds.

⁴⁰ The arguments of this paper could be extended to account for imaginative doxastic states beyond just outright belief. One natural extension is imaginative degrees of belief. Another extension is that some imaginings may be best modeled as hypotheses rather than (either outright or degreed) beliefs, insofar as they play a role in guiding inquiry without involving endorsement of their contents. See Palmira 2020 for further discussion of hypotheses. Finally, some imaginings might be best modeled as mere guesses insofar as they constitute an answer to some question even if one has an arbitrarily low credence that answer is true. See Dorst & Mandelkern 2023 for further discussion of guesses, although see Holguín 2022 for the view that guesses just are beliefs.

⁴¹ A further taxonomical issue concerns the joint between perception and cognition. On some views, this joint is constituted by a difference in format; perception has an imagistic format while cognition has a discursive format (Block 2023). This paper poses a challenge for these views by holding that belief, a paradigmatically cognitive state, can have an imagistic format.

⁴² See Currie & Ravenscroft 2002 for a canonical articulation and defense of this view.

Second, imaginative beliefs have the potential to synthesize seemingly opposing views throughout philosophy of mind. In debates over what sort of mental state underlies a cognitive or behavioral phenomenon, belief-based theories are often cast as rivals to imagination-based theories. This occurs in contexts as widespread as the literatures on decision-making, implicit bias, amodal completion, and delusion.⁴³ But the arguments of this paper suggest that belief and imagination-based views of these phenomena need not be cast as rivals. Perhaps imaginative beliefs underlie at least some of the relevant phenomena, in which case belief-based and imagination-based theories are just getting at two sides of the same coin.

Let me end by cautioning against too reductive an understanding of imaginative beliefs. Although imaginative beliefs are beliefs, they are also genuinely imaginative. Philosophers of imagination should not pack up their bags and go elsewhere, leaving their work to philosophers of belief. Instead, we need to think carefully about the representational and epistemic tradeoffs between imagistic and non-imagistic thought, and the unique ways that imagistic thought can be employed in guiding reasoning and action.⁴⁴ Imaginative beliefs explain the epistemic power of the imagination while leaving room for the imagistic format of the imagination to play a distinctive representational and epistemic role.⁴⁵

⁴³ On decision making, see Nanay 2016 for an imagination view and Smith 1987 for a belief view. On implicit bias, see Sullivan-Bisset 2019 and Nanay 2021 imagination views and Mandelbaum 2016 for a belief view. On amodal completion, see Nanay 2010 for an imagination view and Briscoe 2011 for a belief view. On delusion, see McGinn 2004 for an imagination view and Bortolotti 2009 for a belief view.

⁴⁴ For discussion of these issues, see Camp 2007, Myers 2023, Quilty-Dunn & Mandelbaum 2020, and Shepherd 2021.

⁴⁵ Thanks to Paul Boghossian, David Chalmers, Jane Friedman, Peter Langland-Hassan, Andrew Lee, Neil Van Leeuwen, and the audience at the 2020 Online Conference for Imagination Domination for very helpful comments and discussion.

References

- Arcangeli, Margherita (2020). The Two Faces of Mental Imagery. *Philosophy and Phenomenological Research* 101 (2):304-322.
- Armstrong, David M. (1973). *Belief, Truth and Knowledge*. Cambridge University Press.
- Bartlett, Gary (2018). Occurrent states. *Canadian Journal of Philosophy*, 48(1), 1-17.
- Blaisdell, Aaron P. (2019) Mental imagery in animals: Learning, memory, and decision making in the face of missing information. *Learn. Behav.* 47, 193–216.
- Block, Ned. (2023) *The Border Between Seeing and Thinking*. New York: Oxford University Press.
- Boghossian, Paul (2014). What is inference? *Philosophical Studies* 169 (1):1-18.
- Bortolotti, Lisa (2009). *Delusions and Other Irrational Beliefs*. Oxford University Press.
- Brady T. F., Konkle T., Alvarez G. A., Oliva A. (2008) Visual long-term memory has a massive storage capacity for object details. *Proceedings of the National Academy of Sciences*. 105(38):14325-9.
- Briscoe, Robert Eamon (2011). Mental imagery and the varieties of amodal perception. *Pacific Philosophical Quarterly* 92 (2):153-173.
- Camp, Elisabeth (2007). Thinking with maps. *Philosophical Perspectives*, 21(1):145–182.
- Carruthers, P. (2008). Meta-cognition in animals: A skeptical look. *Mind and Language*, 22(1), 58–89.
- Currie, Gregory & Ravenscroft, Ian (2002). *Recreative Minds: Imagination in Philosophy and Psychology*. Oxford University Press.
- Dorsch, Fabian (2016). Knowledge by imagination - how imaginative experience can ground knowledge. *Teorema: International Journal of Philosophy* 35 (3): 87-116.
- Dorst, Kevin & Mandelkern, Matthew (2023). Good Guesses. *Philosophy and Phenomenological Research* 105 (3):581-618.

- Epstein R. A., Patai E. Z., Julian J. B., Spiers H. J. (2017) The cognitive map in humans: spatial navigation and beyond. *Nature Neuroscience*. 20(11):1504-1513
- Flores, Carolina (forthcoming). Resistant Beliefs, Responsive Believers. *Journal of Philosophy*.
- Frick, Andrea, & Möhring, Wenke (2013). Mental object rotation and motor development in 8- and 10-month-old infants. *Journal of Experimental Child Psychology*, 115(4), 708-720.
- Gendler, Tamar Szabó (2008). Alief and Belief. *Journal of Philosophy* 105 (10):634-663.
- Glüer, Kathrin (2009). In Defence of a Doxastic Account of Experience. *Mind and Language* 24 (3):297-327.
- Glüer, Kathrin & Wikforss, Åsa (2013). Aiming at truth: on the role of belief. *Teorema: International Journal of Philosophy* 32(3), 137-162.
- Goldman, Alvin I. (2006). *Simulating Minds: The Philosophy, Psychology, and Neuroscience of Mindreading*. Oxford University Press.
- Hamm, Jeff, Matheson, William R., & Honig, Werner K. (1997). Mental Rotation in Pigeons (*Columba livia*)? *Journal of Comparative Psychology*, 111(1), 76–81.
- Helton, Grace (2020). If You Can't Change What You Believe, You Don't Believe It. *Noûs* 54 (3):501-526.
- Holguín, Ben (2022). Thinking, Guessing, and Believing. *Philosophers' Imprint*:1-34.
- Jenkin, Zoe (2020). The Epistemic Role of Core Cognition. *Philosophical Review* 129 (2):251-298.
- Johnson, S. P., & Moore, D. S. (2020). Spatial thinking in infancy: Origins and development of mental rotation between 3 and 10 months of age. *Cognitive Research: Principles and Implications*, 5, Article 10.
- Kaplan, David (1968). Quantifying in. *Synthese* 19 (1-2):178-214.
- Kind, Amy (2013). The Heterogeneity of the Imagination. *Erkenntnis* 78 (1):141-159.

- Kind, Amy (2016). Imagining under constraints, in Amy Kind and Peter Kung (eds.), *Knowledge Through Imagination*. Oxford University Press, 145–59.
- Kind, Amy (2018). How imagination gives rise to knowledge. In F. Dorsch & F. Macpherson (eds.), *Perceptual memory and perceptual imagination*. New York: Oxford University Press.
- Kind, Amy & Kung, Peter (2016). Introduction: the puzzle of imaginative use. In Amy Kind and Peter Kung (eds.), *Knowledge Through Imagination*. Oxford University Press, 1-37.
- Köhler, Christian, Hoffmann, Klaus P., Dehnhardt, Guido, & Mauck, Björn (2005). Mental rotation and rotational invariance in the Rhesus monkey (*Macaca mulatta*). *Brain, Behavior and Evolution*, 66(3), 158–166.
- Lai, C., Tanaka, S., Harris, T. D., Lee, A. K. (2023). Volitional activation of remote place representations with a hippocampal brain-machine interface. *Science* 382(6670):566-573.
- Langland-Hassan, Peter (2015). Imaginative attitudes. *Philosophy and Phenomenological Research*, 90(3):664-687.
- Langland-Hassan, Peter (2020). *Explaining Imagination*. Oxford: Oxford University Press.
- Leite, Adam (2008). Believing one's reasons are good. *Synthese* 161 (3):419-441.
- Levy, Neil (2017). Religious beliefs are factual beliefs: Content does not correlate with context sensitivity. *Cognition* 161:109-116.
- Loar, Brian (1981). *Mind and Meaning*. Cambridge University Press.
- Madva, Alex (2016). Why implicit attitudes are (probably) not beliefs. *Synthese* 193(8): 2659-2684.
- Mandelbaum, Eric (2016). Attitude, Inference, Association: On the Propositional Structure of Implicit Bias. *Noûs* 50 (3):629-658.
- Mauck, Björn & Dehnhardt, Guido (1997). Mental rotation in a California sea lion (*Zalophus californianus*). *Journal of Experimental Biology*, 200(9), 1309–1316.

- McGinn, Colin (2004). *Mindsight : image, dream, meaning*. Cambridge, Mass.: Harvard University Press
- Miyazono, Kengo & Tooming, Uku (2023). Imagination as a generative source of justification. *Noûs* 1-20.
- Moore, David S., & Johnson, Scott P. (2011). Mental Rotation of Dynamic, Three-Dimensional Stimuli by 3-Month-Old Infants. *Infancy*, 16(4), 435–445.
- Moser, Paul K. (1989). *Knowledge and Evidence*. Cambridge University Press.
- Munro, Daniel (2021). Imagining the Actual. *Philosophers' Imprint* 21 (17).
- Myers, Joshua (2021). The Epistemic Status of the Imagination. *Philosophical Studies* 178 (10):3251-3270.
- Myers, Joshua (2023). How Imagination Informs. *The Philosophical Quarterly*. Online first.
- Nanay, Bence (2010). Perception and imagination: amodal perception as mental imagery. *Philosophical Studies* 150 (2):239-254.
- Nanay, Bence (2016). The role of imagination in decision-making. *Mind and Language* 31 (1):126-142.
- Nanay, Bence (2021). Implicit Bias as Mental Imagery. *Journal of the American Philosophical Association* 7(3):329-347.
- Neiworth, Julie J., & Rilling, Mark E. (1987). A Method for Studying Imagery in Animals. *Journal of Experimental Psychology: Animal Behavior Processes*, 13(3), 203-214.
- Nichols, Shaun & Stich, Stephen P. (2003). *Mindreading: An Integrated Account of Pretence, Self-Awareness, and Understanding Other Minds*. Oxford University Press.
- Örnkloo, Helena, & von Hofsten, Claes (2007). Fitting objects into holes: On the development of spatial cognition skills. *Developmental Psychology*, 43(2), 404–416.
- Palmira, Michele (2020). Inquiry and the doxastic attitudes. *Synthese* 197 (11):4947-4973.

- Quilty-Dunn, J. & Mandelbaum, E. (2020). Noninferential Transitions: Imagery and Association. In A. Nes & T. Chan (Eds.), *Inference and Consciousness* (London: Routledge), 151–171.
- Roelofs, Luke (2022). Longings in Limbo: A New Defence of I-Desires. *Erkenntnis*:1-25.
- Schwitzgebel, Eric (2001). In-between believing. *Philosophical Quarterly* 51 (202):76-82.
- Schwitzgebel, Eric (2002). A Phenomenal, Dispositional Account of Belief. *Noûs*, 36(2), 249–275.
- Shah, Nishi & Velleman, David J. (2005). Doxastic deliberation. *Philosophical Review* 114 (4):497-534.
- Shepherd, Joshua (2021). Intelligent action guidance and the use of mixed representational formats. *Synthese* 198(17):4143-4162.
- Smith, Michael (1987). The Humean theory of motivation. *Mind* 96(381):36-61.
- Spaulding, Shannon (2015). Imagination, Desire, and Rationality. *Journal of Philosophy* 112 (9):457-476.
- Spaulding, Shannon (2016). Imagination Through Knowledge. In A. Kind & P. Kung (eds.), *Knowledge Through Imagination*. Oxford University Press. 207–226.
- Stein, Nathaniel (2021). Imagination, expectation, and “thoughts entangled in metaphors”. *Synthese* 199, 9411–9431.
- Stich, S. (1978). Beliefs and Subdoxastic States. *Philosophy of Science*, 45(4), 499-518.
- Stich, Kai P., Dehnhardt, Guido, & Mauck, Björn. (2003). Mental rotation of perspective stimuli in a California sea lion (*Zalophus californianus*). *Brain, Behavior and Evolution*, 61(2), 102–112.
- Sullivan-Bissett, Ema (2019). Biased by our imaginings. *Mind and Language* 34 (5):627 647.
- Teng, Lu (2021). Cognitive Penetration: Inference or Fabrication? *Australasian Journal of Philosophy* 99 (3):547-563.

- Tucker, Chris (2010). Why open-minded people should endorse dogmatism. *Philosophical Perspectives* 24 (1):529-545.
- Van Leeuwen, Neil (2013). The Meanings of "Imagine" Part I: Constructive Imagination. *Philosophy Compass* 8 (3):220-230.
- Van Leeuwen, Neil (2014). Religious Credence is not Factual Belief. *Cognition* 133 (3):698-715.
- Williamson, Timothy (2016). Knowing by imagining. in Amy Kind and Peter Kung (eds.), *Knowledge Through Imagination*. Oxford University Press. pp. 113-123.
- Wiltsher, Nicholas (2019). Characterizing the imaginative attitude. *Philosophical Papers* 48 (3):437-469.
- Winkler I., Cowan N. (2005). From sensory to long-term memory: evidence from auditory memory reactivation studies. *Exp Psychol.* 52(1):3-20.
- Yablo, S. (1993). Is Conceivability a Guide to Possibility? *Philosophy and Phenomenological Research*, 53(1), 1-42.