Distinguishing imagining from perceiving: reality monitoring and the 'Perky effect'

Cain Todd[1,2]

Abstract

This paper examines the problem of how we distinguish, phenomenologically, sensory imagination from perception. I suggest that philosophical discussions of this issue have been hampered by a surprising failure to carefully distinguish what is involved in our awareness of being in a *state* of imagining, from our awareness of the imagistic *content*. Rectifying this allows us, first, to gain a clearer insight into the problem at issue, and it also allows for a new interpretation of the so-called 'Perky effect', whereby subjects supposedly confuse imagining for perceiving. Second, it allows us to give a more nuanced account of reality monitoring and of the metacognitive mechanisms underpinning the phenomenal features we rely upon to distinguish state from content.

1 Introduction

It might seem obvious that, in everyday experience, we rarely confuse sensory imagination and perception, and deceptively easy to say why: imagining and perceiving are just experientially very different kinds of states that manifest very differently in conscious experience. However, it is surprisingly difficult to articulate precisely the phenomenological differences between them. [1] There is, as such, no consensus about how the metacognitive process known as 'reality monitoring' works; namely,

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[1] For good overviews of the issues involved see McGinn (2006), Kriegel (2015), Nanay (2015), Pearson (2019), Kind (2020), Arcangeli (2020).

✉ Cain Todd
  c.todd@lancaster.ac.uk

1 Lancaster University, Lancaster, UK

2 University of Notre Dame, Notre Dame, US

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the ability we have to tell sensory perception apart from other states, such as sensory memory and sensory imagination.[2]

Following the discussions in the literature, I will focus on visual imagining as the primary example, where this is understood to be the voluntary and conscious act of creating and sustaining visual imagery. As will become clear, this is important because I will argue that part of the explanation for some apparent breakdowns in reality monitoring concern certain forms of involuntary rather than voluntary imagery.

In many philosophical discussions of the relationship between imagination and perception there is an uneasy tension between explaining the phenomenal similarities, on the one hand, and the differences, on the other. (See n. 1) From an empirical perspective, in which there are significant neuroanatomical similarities and overlaps between the two states, it makes sense to wonder why they should be, in certain respects, so phenomenally different. (Pearson, 2019) Yet, at the same time, it seems that under certain conditions we can in fact confuse the one for the other.

Such conditions purportedly occur in the famous Perky experiments, in which subjects looking at a white wall were asked to visualize certain objects while keeping their eyes open. (Perky, 1910) Unbeknownst to them, the same objects were gradually projected on the wall, and yet when asked, the subjects took themselves to be imagining what they were in fact now purportedly perceiving. This result, called the 'Perky effect', has frequently been interpreted as perception being mistaken for imagery.[3] As we will see, a much more recent version of the Perky experiments by Dijkstra and colleagues seems to show in addition that subjects can mistake what they are imagining for genuine perceptual experiences. This in turn has led the researchers to hypothesise a distinctive mechanism responsible for reality monitoring. (Dijkstra et al. 2021a, 2021b)

One key difficulty in addressing the question at hand, I shall argue, is that researchers frequently conflate *states* of imagining and perceiving, on the one hand, with images and percepts considered as the *content* of such states, on the other. The terms 'state' and 'content' carry a lot of philosophical baggage, and I do not think we need to weigh in on any of these disputes here. As I am using them, they are to be understood as theoretically neutral ways of simply marking the distinction between imagining and imagery (the 'content' of imagining), on the one hand, and perceiving and percept (the 'content' of perception) on the other. Sometimes, for example, the state of imagining is perhaps better understood as a process or an act, but the context will make it clear what is meant.

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[2] For useful discussions of reality monitoring see Johnson (1981, 2006), Holmes and Matthews (2005) and Dijkstra et al. (2022). Although the discussion is often framed in terms of distinguishing imagining from perceiving, reality monitoring more broadly refers to distinguishing internally from externally generated processes, where the former can also include memories. The literature also uses the term 'source monitoring', focussing on the ability of discriminating, in memory, between externally and internally generated memories.

[3] For an interesting debate about how the Perky experiments should be interpreted, see Segal (1972), Hopkins (2012), Nanay (2012). This particular discussion, however, has no real bearing on the view I develop. However, the important view of Segal (1972) will be addressed below.

'Content' requires a little more explanation. It is worth noting that I am not committed to holding that percepts are the 'objects' of perception, any more than images are the 'objects' of our imaginings. My own view is that we perceive real objects in some way *via* perceptual experiences, and we imagine objects via sensory imagery. (See Kind, 2001) So when we imagine a chair, the chair is the *object* I imagine, and I do so via the imagistic content of my imagining.

I do not think that anything of import for the current discussion depends on this. Nonetheless, it is useful to emphasise that by 'content' I do not mean 'representational' content and I am not committed here to any particular view of the relationship between images and what they are images *of*, or to any view of the nature of perceptual experience. By 'content' I simply mean, in the case of imagining, the images involved in sensory imagining, and in the case of perception the perceptual experience, however one conceives of it.[4] I am not at all concerned with the ontological issue of what images or perceptual experiences *are*, but solely with (i) the different criteria governing our awareness of them and our awareness of being in the 'states' of voluntarily imagining or perceiving, and (ii) how we judge that the contents are images rather than percepts.

In short, I will argue that the way in which we tell images apart from percepts phenomenally is not necessarily the same as the way in which we distinguish imagining from perceiving. 'State awareness', that is, involves our general metacognitive ability to tell apart perceptual experiences from imaginary experiences. 'Content awareness', on the other hand, refers to our ability to identify the nature of the content of our experiences, whether they seem to be imagistic or perceptual. A failure to keep this distinction in mind has, I suggest, blighted many discussions of the relationship between imagination and perception.[5] Moreover, invoking this distinction between 'state' and 'content' also allows us to reinterpret the Perky effect and in doing so to see that both types of awareness may contribute in different ways to reality monitoring by drawing on different types of phenomenal features.

2 Agency, attention, and imagining

Various criteria have been proposed as being essential to phenomenally distinguishing imagining from perceiving, but the features of vividness and voluntariness have been among the most common candidates called upon to do this work. (See refer-

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[4] I will be concerned primarily with the phenomenology of imagining rather than perception and as such I shall say almost nothing about the nature of percepts or the relationship between perception and percepts. However, I will favour 'percept' over 'perceptual experience' insofar as the latter can seem to refer ambiguously to the state of perceiving or to the percept that is the 'content' of this state.

[5] Arcangeli (2020) makes a similar distinction between what she labels 'attitude' and 'content', and she seems to be engaged in a similar project to the one embarked on here: namely, arguing that a failure to clearly distinguish between attitude and content gives rise to confusions in certain philosophical debates. However, she is concerned specifically with the conceptual boundaries demarcating what counts as imagination, not with the different criteria governing our phenomenal awareness of states and objects that are involved in reality monitoring.

ences in note 1)[6] It has been argued that images are supposedly less vivid than percepts, and imagining is supposedly subject to the will in a way that perception is not. However, neither seem to do the job adequately. Apart from the intrinsic unclarity of the concept 'vividness' (Kind, 2017) some images can be very vivid and detailed – such as in daydreams, or when constructed with effort in the process of an imaginative project – while some perceptions are very blurry or vague or lacking in detail. One might just get a fleeting glance of some quickly moving or indistinct object, such as a reflected light beam or shadow, and one might have failing eyesight or be seeing things through a haze or fog. Yet such cases do not usually present any real obstacle to distinguishing imaginative from perceptual experiences in our daily life. No matter how vivid the imagery or how non-vivid the perceptual experiences, we do not normally confuse them. (Kind, 2017; Tooming & Miyazono, 2021)

Voluntariness is the purported subjection of the imagination to the will, and many have argued that whereas what we perceive is not determined by our aims or agency, what we imagine seems to depend in some way entirely on us.[7] The existence of involuntary imagery, however, seems to provide a good reason for thinking that voluntariness is not sufficient to demarcate imagining from perceiving, either conceptually or experientially. (Kriegel, 2015; Kind, 2020) Involuntary imagery – of the kind that occurs in daydreams, for example – seems phenomenally quite different from genuine perceptual experiences. Yet even when vivid images come unbidden to us, we do not normally mistake them for perceptual experiences. I am sitting in the library trying to write when I catch myself fantasising about drinking a cold beer in the sun outside, without being remotely inclined to think this is what I'm actually doing in reality. Indeed, we naturally group involuntary with voluntary images rather than with percepts, thereby apparently undermining the claim that voluntariness is the distinctive mark of imagining.

There are ways of reconciling the existence of involuntary imagery with the essentially voluntary nature of imagining, but for the purposes of the present discussion these can be set aside. (See McGinn, 2006) I am not concerned with the metaphysical question of what the imagination is, or with giving necessary and sufficient criteria for differentiating the concept of imagination from that of perception. Rather, I want to concentrate instead on what is involved in our awareness of voluntary imagining when we deliberately sensorily imagine something, and how this differs phenomenally from perception. The role of involuntary imagery in reality monitoring will become clearer below.

With the distinction between imagining and imagery in mind, it is crucial for my account to see how these criteria arguably apply to different aspects of the perception/imagination distinction. For example, vividness is arguably more naturally conceived

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[6] Voluntariness can be conceived of as either a conceptual or phenomenal criterion, or both. I won't differentiate explicitly between these but when I come to talk of the sense of agency below, I am thinking of voluntariness primarily as a phenomenal feature of imagining.

[7] For example, McGinn (2006), following Sartre and Wittgenstein, emphasises the voluntary nature of imagining, but there is little discussion of the phenomenology associated with this voluntary nature. Similarly, in philosophical work on mental agency, such as represented in O'Brien and Soteriou (2009), there is little on the imagination. See Kriegel (2015). For an overview of the empirical literature see Haggard (2017).

as a feature of the content (imagery) than of the state (imagining). We can of course say that we 'imagine vividly', thereby apparently referring to the state of imagining, but arguably this is either: (i) a derivative use of the term that refers to a property of the state only by virtue of being a property of the content of that state, or (ii) it means something different (and perhaps metaphorical) entirely; perhaps something like being 'immersed' in the imagining. In contrast, the primary attribution of 'voluntariness' arguably applies to the state of imagining and only derivatively to its content, whereby 'voluntary imagery' refers to imagery having its source in a voluntary state, namely that of voluntary imagining. The conflation of state and content in contemporary discussions of imagination and the Perky effect is problematic insofar as it fails to mark this difference.

Nowhere is this better illustrated than in the significant and original attempt to contrast and compare imagining and perceiving given by Nanay (2015), who claims that attention plays a central role here. Although in many respects illuminating, the ways in which his account goes wrong reveal some important features of the difference between imagining and perceiving. Impressed, amongst other things, by the Perky experiments, Nanay attempts to explain the phenomenal similarity between visual perception and visual imagining (visualisation) by arguing that the structure of the contents of the two states is similar. This explanation is also supposed to account for the phenomenal difference(s) between the two states.

Nanay holds that perceptual content is constituted by the properties that are perceptually attributed to the perceived scene. Such properties can be more or less determinate, and attention, he argues, plays a central role in fixing the content of perceptual states insofar as it makes attended-to properties more determinate. In just the same way, he claims, the content of imagery is the "sum total of the properties attributed to the imagined scene" and in visualised scenes too, attention makes the attended properties more determinate. (p.1728)

So, the content of visual perception and visualisation is structured in the same way, and attention plays a key role in this structuring in both states. They differ, however, in that the increase in determinacy in perception comes about externally, from sensory stimulation, whereas the extra determinacy in the visualised scene must be provided top-down, internally, from memories, beliefs and expectations.

Even granting the implicit representationalist assumption underpinning Nanay's account, however, it is not obvious how the role of attention in the structuring of perceptual or visualised *content* is supposed to explain the *phenomenal* similarity between visualisation and perception. In fact, he has surprisingly little to say about this. Nanay claims only that we know from various empirical studies that attention can "dramatically change what we experience" (p.1730), and so it should be clear that "similar allocation of attention in the case of perception and mental imagery can explain the similarity between the phenomenology of perception and mental imagery". (p.1733) In the same fashion, it seems, it is the dissimilarity concerning the *way in which* content is structured that is supposed to explain the phenomenal difference(s) between the two:

"The difference is between the dynamics of *how* the represented properties, and, importantly, the determinacy of the represented properties change in

response to the allocation of attention. The difference is not between what perceptual content and the content of mental imagery are, but between the way they change." (p.1730).

So, on my understanding, Nanay's view holds that visualising and perceiving are phenomenally similar (in some respects) in virtue of the similar way in which attention structures their content, and yet phenomenally different (in other respects) in terms of the different ways – the 'dynamics' – by which attention comes to play a role in this structuring. Yet Nanay does not say how exactly this difference in dynamics manifests phenomenologically, nor which phenomenal differences it purportedly explains. This is problematic, because the different 'dynamics' governing attention in visualisation and perception serve, I think, to undermine Nanay's account of the phenomenal similarity between the two states, and perhaps even the claim that attention structures the content in each state similarly.

Let us assume for the moment that Nanay is right in claiming that attention in both visual perceptual experience and visual imagining makes the properties attributed within each more determinate. Even so, the way in which such determinacy is experienced is very different in each, in two respects. First, the kind of attention focussed on imagery is inward rather than outward, internally rather than externally directed. Second, the resulting determinacy in the case of voluntary imagery is not just the result of attention as such, but of an intentional act, an act which is responsible not just for the determinacy, but for the entire content of the experience. Both of these factors – attention and intentionality – have clear phenomenal manifestations which entail that paying *internal* attention to imagery is experientially very unlike paying *external* attention to perceptual objects.

The important distinction here is not that between endogenous and exogenous attention, for I can deliberately focus my endogenously produced attention onto the external world. Rather, it's the distinction between inwardly directed and externally directed attention that is key and that partly explains the phenomenal difference between the resulting experiences.

When I turn my attention to perceptual properties, in the normal case it seems to me that the resulting determinacy belongs to the objects in the world. My awareness of the resulting determinacy is *passive*, in the sense that it seems to be a simple registering of external stimuli. The resulting experience of determinacy is taken by me to present or represent a property of the objects in the world, not a property of my experience of them. Crucially, as we shall see, this passivity also lacks a sense of effort that seems essential to the active nature of imaginative experience.[8]

When I turn my attention to my images, in contrast, it does not appear like this because I am (normally) aware that the determinacy comes from my own intentions, as these are constituted partly by cognitive states such as desires, beliefs, and expectations.[9] The determinacy of voluntary images is added by me in an essentially *active*

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[8] For an interesting account of this transparency or 'receptivity' of perceptual experience as applied to temporal phenomenology see Soteriou (2018).

[9] The question of what kind of awareness this is – e.g. cognitive or noncognitive – is a difficult question and one beyond the scope of the present discussion. Of course such cognitive states also play a role in

and *agential* process. As such, we do not have the feeling that we are discovering properties of the image that are already there, in some mind-independent way. My imagistic experience does not seem to me to present or represent a property of mind-independent objects that are the external causes of my experience.[10]

Paying attention within imagistic experiences thus has a quite different phenomenal character from that of paying attention within visual perception. In the latter case, the world can surprise us, the more we attend to it. There is no similar feeling of *discovering* determinacy in the case of visualisation.[11]

It is in virtue of its passivity that visual perceptual experience can seem to us to be *transparent*. We can ignore here the intricate philosophical disputes about whether perception really is transparent, and what sort of transparency it possesses. (See Kind, 2003 for discussion; Kriegel, 2015; Soteriou, 2018) Simply put, the phenomenal transparency of visual perception describes how our perceptual experience seems to us to be when looking at the world and its objects; namely, that the objects and properties we see do not seem to be properties of our experience, but of the world and objects we are experiencing. When focussing our attention, we discover a determinacy in the properties of objects that they seem to really possess, in a mind-independent way. Our visual experiences are in this sense (more or less) transparent to the world, and this holds even if there are additional features of the experiences themselves that we can introspectively attend to. Phenomenal *transparency* and *passivity* thus go inextricably together in our visual experiences, even where we feel ourselves to be the endogenous source of active attention.

Now one might perhaps think that imagery too possesses something like transparency insofar as we attribute properties to an imagined scene that our imagistic experience (transparently) presents to us. But given what I have just said about the phenomenology of agency and attending I think this is a very misleading, perhaps even incoherent, way of putting it. The imagined scene contains only what we put into it, so we are not 'presented' with it in anything like the way in which we are presented with the objects of a perceptual scene; namely, as external objects that are the causes of our relatively passive perceptual experiences. It is, I think, quite difficult even to make sense of the idea that we simply 'look through' our imagistic experience in visualisation to the 'external' images that such experiences represent. There is,

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perception, and on some predictive processing accounts, an all-encompassing role. This does not challenge the current point, however, which is solely about how the determinacy is experienced by me in imagistic imagining.

[10] This feature of our imaginative experience helps explain why some philosophers have insisted that we cannot be surprised by the content of our imagery, no matter how determinate it becomes. (See McGinn, 2006 for discussion) Its content is the result of an act of my *agency*, of my deliberate willed intention. Arguably, as a reviewer pointed out, this is not quite right since many of the details in my imagery appear to be automatically filled in and may even take me by surprise. Nonetheless, I contend that it will normally appear to us that even such details are amenable to our voluntary control and thus in a broader sense dependent on our agency. I will address the role of involuntary imagery in cases like this below.

[11] There is an interesting debate here about whether the phenomenology of attention in perceptual experience can be characterised so simply. Ned Block and Wayne Wu, for example, hold views according to which the extra salience or prominence or determinacy added to perceptual experience by attention can seem to us to be a property of our experience rather than an objective property of the objects of this experience. There is unfortunately no scope to pursue this issue further here.

after all, no sense in which such experiences seem to be caused by external objects. Rather, if anything, our experiences are, and are experienced as being, the cause of those imaged objects.

To put it a little roughly, this is at least partly because the role of attention in visualisation is normally accompanied by the distinctive awareness of ourselves as the source of our experience, a 'sense of agency'. This sense of agency affects how the content of imagery appears to us to be. In particular, in the case of imagery but not perceptual experience, this content seems to us to be a result of my agency and my willed, internally directed attention. Attending in a top-down way to internally generated images is thus phenomenally very different from attending to externally generated perceptual experiences that are 'given to' us, more or less passively, in a bottom-up way.

Thus, even if attention functions to make the properties of images more determinate in visualisation, the phenomenology of the resulting experience of 'willed' determinacy differs markedly from the 'passively discovered' determinacy of visual perception. The phenomenology of visualising is neither attributive nor transparent in anything like the way it seems to us to be in perception, and the phenomenology of attending within visualisation is therefore also very different.[12] In sum, then, where visual perception involves a sense of *passive transparency* and discovery with respect to the external world, visual imagining involves a sense of *agential control* of and internally directed attention to 'mere' imagery.

Nonetheless, perhaps Nanay is on the right track with the general claim that the difference in the sources of attention involved in imagining and perceiving is responsible for the different phenomenal character of the two states. This would be in line with the evidence suggesting two different attention networks at play, one internally focused and the other externally focussed, and a mechanism for mediating between them. The DMN attention network might well help explain, at least in part, the particular phenomenology of top-down agency at the heart of the non-transparent character of visualisation. (Spreng et al., 2013) [13]

It is important, however, to differentiate the phenomenology of the type of attention deployed from the experience of our intentional agency. The direction of attention *inward* is not sufficient to explain the difference between imagining and perceiving because we can attend to inner states that are not themselves imaginings. Interoception, for example, involves attention to our inner bodily states, and is a kind of perception that does not feel like imagining. Moreover, introspecting our perceptual

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[12] Indeed, if what I have said above is correct, it is no longer obvious that determinacy is the right notion for capturing the role of attention in imagery, or at the very least it's not the same kind of phenomenon. Rather, we might argue that one (part of an) image is just replaced with another. We may add more tiger stripes and pay more attention to their exact hue, but really we are just consciously changing what was there before. It is very far removed from watching the gradual change of the colour's hue to become more and more specific in the way we see in the focussing of perceptual attention. In any case, however we try to capture the difference, not just the phenomenal character but also now the content of imagining begins to look less and less similar to the content of visual perception.

[13] There is empirical evidence to suggest that attention during imagery and perception are implemented via similar neural mechanisms (e.g. Ishai et al., 2002; Dijkstra et al., 2017, 2019). There is, however, also evidence to suggest that there are different attentional networks at play see Ostby (2012); Pearson (2019); Dijkstra et al. (2017), (2019); Spreng et al. (2013).

experiences seems to involve a prior awareness that they are, indeed, perceptual. The top-down source of endogenous attention involved in imagining is also insufficient to explain the difference, since such attention also plays a role in directing our visual focus in perceptual attention.

So, the main phenomenal work being done to differentiate our imaginative from our perceptual experiences seems to be the result not of attention as such, but of the sense of agency to which I have alluded. It is this sense of our own agency in causing and sustaining voluntary imagery that seems to be central to our imaginative experiences and normally allows us to differentiate imagining from perceiving.

Obviously, much more would need to be said about this feeling of agency if we were relying solely on it to give a general account of the phenomenal difference(s) between imagination and perception.[14] Yet the goal here is more modest. I want to rely on this awareness of agency – whatever its ultimate nature – to show how we are 'normally' not mistaken about being in the state of voluntary imagining when we are, and as such, I shall argue, we do not confuse perceiving for imagining in the way that many interpretations of the Perky effect have assumed.[15] However, we can be mistaken about the nature of the content, and this has important implications for how we conceive of the metacognitive processes involved in reality monitoring.

3 State vs. Content, Involuntary Imagery, and the 'Perky Effect'

It is interesting to observe that Nanay sets up his discussion as being concerned with the difference between what I am calling the *states* of visual imagining and visual perceiving, and yet his account centres on what I am calling the *contents*: the determinacy of imagined and perceptual content, of images and percepts. Indeed, as I have tried to show, even the similarity of the *contents* should not be exaggerated since our experiences of them too are very different, partly in virtue of our different causal relations to them: internal vs. external, passive vs. active, transparent vs. opaque, effortful vs. effortless. More precisely, considered only as contents apart from their sources – i.e. acts of perceiving or imagining – visual perceptual experiences and visual imagery do resemble each other in some respects, but considered as the products of the intentional acts of creating and sustaining them, the nature and determinacy of images is presented in our experience in a phenomenally very different way.

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[14] Some, e.g. McGinn (2006) have argued that the existence of involuntary imagery is compatible with voluntariness being an essential feature of imagination. On the sense of agency see Pacherie (2007), Dorsch (2012). On the active/passive distinction see Kriegel (2015), Munoz (2018), Soteriou (2018), Kind (2020).

[15] The qualification 'normally' shall be addressed below. In response to my claim that the sense of agency is key to phenomenologically distinguishing imagining from perceiving a reviewer has pointed out that the order of explanation might be the reverse: that once our brain infers whether we are imagining or perceiving, our phenomenological experience changes, giving a higher sense of agency to the one that is inferred to be imagined. I cannot rule out this possibility but would like to note that the onus would then be on the one defending that view to show how the brain performs this inference, and then to explain why this should result in the phenomenology of agency. In any case, since the point I am making is entirely phenomenological, what inferences the brain actually performs and what the causal connection between inference and phenomenology is, is something beyond the scope of the present discussion.

The reason for Nanay's focus, I think, is that he is overly impressed by the phenomenal similarity between visual imagining and visual perception, which is itself partly a result of being impressed by the so-called Perky effect. And the purported similarities involved in this effect are features of the *content* rather than the states: of images and percepts, rather than imaginings and perceivings. Understood like this, it is not that subjects demonstrate a confusion between imagining and perceiving. Rather, the experiments reveal a particular attentional effect.

The subjects are trying to hold an image of some object X in their minds and insofar as they succeed in this, they will be attending to this image. When asked whether they are imagining X, the subjects say they are, and this is a natural response because they are making the mental effort required for and distinctive of the creation of and attention to a mental image. So in this sense they are indeed imagining X. Insofar as the image is the focus of their attention, they are also attending to it and in this respect too their answer is correct.

This interpretation tallies to some extent with Segal's conclusion – arising from her attempts to replicate Perky's experiments – that the apparent confusion between image and percept seems to occur because the processes involved in forming a mental image of the requested type interfere with the normal utilization of the mechanisms of perception, and raise perceptual detection thresholds (Segal, 1972) Recent empirical studies have confirmed that the internally directed attention to involved in producing imagery likely interferes with subjects' ability to process external signals. (De Vito et al., 2014; Spreng et al., 2013; Pearson, 2019) As such, in the psychological literature "the Perky effect" has come to mean not the confusion of images with percepts, but the decrement in visual performance that results (in most circumstances) when one deliberately maintains an image in consciousness (Craver-Lemley & Arterberry 2012).[16]

However, this cannot be the full explanation of the Perky Effect, for two main reasons. First, it leaves open possible cases where it is correct to say that what subjects are attending to is in fact the perceptual object and its properties, of which they take themselves to be unaware; perhaps because, with their eyes open, their attention is not wholly or consistently internally directed. In such cases it may well be the properties of this perceptual object, rather than of the image they had first formed, that constitutes at least part of the content of their experience.

Yet even these kinds of case would not necessarily undermine the correctness of their answer that they are still imagining X, where this refers to being in the state of imagining. If there is any confusion here, it is in thinking that certain properties of a perceptual image are in fact properties of an imagined image, and so a confusion about the nature of the content and its source rather than the state they are actually in. That is, they are correctly aware they are imagining, but they erroneously think the content of this state is purely imagistic when it is (at least partly) perceptual.

Second, Segal's thesis leaves unexplained the results of recent experiments which also demonstrate the Perky effect. Dijkstra and colleagues (2021a) instructed participants to imagine oriented gratings while looking at dynamic noise. In some

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[16] It should also be noted that there is evidence of imagery facilitating perception (Pearson et al., 2008) and of it decreasing the detection threshold (Dijkstra et al., 2021, 2022). I will comment briefly on this below.

experiments, but not all, a grating with either the same (congruent) or perpendicular (incongruent) orientation to the imagined stimulus gradually became more visible until it was around detection threshold. Participants were then asked whether they thought a stimulus was presented or if what they saw was imagined.

The results seem to show that congruent visual imagery increases the likelihood a stimulus is judged as real, in that the probability of judging a stimulus to be real was higher in the congruent compared to the non-congruent condition. That is, even in cases where no stimulus was presented, some subjects gave a positive response of presence. Furthermore, participants with more vivid imagery were generally more likely to report the presence of external stimuli, and reality judgements in turn increased the experienced vividness of imagery. They argue that their results suggest that the effects are genuine effects of imagery, rather than of attention or other cognitive biases, because the imagery biases the presence reports in a stimulus-specific way.

These experiments are interesting and important for a number of reasons, one of which is that where Perky seemed to show that perception could be mistaken for imagination, here imagination is purportedly mistaken for perception. Their findings lead the researchers to a hypothesis according to which internal and external signals are combined and reality monitoring is implemented by evaluating the total strength of this combined signal against a 'reality threshold'. By 'signal strength', it is evident that the researchers mean something like vividness. When virtual or imagined signals are strong enough, they become, according to this hypothesis, indistinguishable from reality.

There is no space here to quibble with the methods or even the broad interpretation of the results of these recent experiments. For our purposes it is more important to examine the 'reality threshold' hypothesis to which the researchers are led and the notion of vividness underpinning 'signal strength'. It would be interesting to know what strength of vividness sets the reality standard, but more importantly, although vividness might sometimes play a role in some source (mis)attributions where perhaps there are no other clear criteria to invoke, as here, vividness looks an unlikely general source of reality monitoring, for reasons that I outlined earlier.

Now it could be that, given certain unusual experimental conditions, there is a continuum of vividness along which images can sometimes be mistaken for percepts. However, this still does not show that, even in these conditions, subjects mistake imagining for perceiving, considered as states, for the same reasons I noted above in relation to the Perky effect. A more plausible explanation is that the subjects in these highly unusual experimental conditions are mistaken about the nature of the contents of their experience but they are not confused about the nature of the state they are in, whether they are imagining or perceiving. To think otherwise is, again, to mistake properties of the content for properties of the state and thereby to arrive at a mistaken general conclusion about the nature of reality monitoring.

Nonetheless, it is genuinely puzzling that subjects who are actively engaged in creating and sustaining some visual image can, even in such unusual conditions, mistake the resulting image as perceptual. This is because, arguably, in order to be a voluntary visual imagining, we must be visually imagining something. It seems that the act of voluntarily imagining, as such, cannot be experienced in a way that

is somehow untethered from the image that the imagining subject is producing and sustaining. The state thus necessarily requires attention to and the sustaining of some visual image. The image is a constitutive part of the state. How, then, could they be so confused as to fail to be aware that the image is imagined and not perceived?

To answer this, it is crucial that we again distinguish state from content. The subjects of the experiment are only explicitly asked whether there was a real stimulus or not, not whether they were voluntarily imagining the stimulus *at the time* the stimulus seemed to be real to them. So the question they are asked is about the content and its source rather than the nature of the state they are in. Although the task begins with an act of voluntary imagining, it is not at all clear what the subjects are experiencing in terms of their state when the content comes to seem real to them.

Arguably, if asked, they would no longer be experiencing their state as one of actively voluntary imagining, perhaps *because* they now take the content to be perceptual. This would indicate that they are using clues about the nature of the content to draw conclusions about their own state. But this now leaves us with another difficult question, one that concerns the state rather than the content: can subjects be unaware that they are voluntarily imagining some object if they are?

One potential explanation can be found in evidence showing that the visual images of imaginative actions can sometimes persist beyond these actions and take the form and function of perceptual traces. (See e.g. Dijkstra et al. 2019; Pearson et al., 2008; Nanay, 2018; Keogh & Pearson, 2021) Imagining visual content can induce visual perceptual learning, improving subsequent visual sensitivity to those specific types of stimuli. Indeed, visual imagery can have functional effects on sensory processing as if it were a weaker form of visual perception. For example, both imagining and perceiving oriented lines can have a similar effect on subsequent perception. Pearson et al. (2008) have also shown that prolonged mental imagery can lead to the gradual accumulation of a perceptual trace, having much the same effect as weak perception. After this trace is formed, it can persist for short periods while the observer is actively engaged in another visual task and so it is not dependent on active maintenance.

I suggest that the most plausible explanation of these kinds of case is that the subjects are experiencing involuntary images – ones where the initial source was a voluntary imagining – which are in turn mistaken for perceptual content. Indeed, insofar as such imagery can play a functional role in perception, it might be regarded in certain cases as perceptual, in which case the subjects' reports would be correct. [17]

Whether or not we think of such involuntary imagery as being a product of imagination, such cases arguably no longer involve a state of voluntary imagining and the subjects would be correct, if asked, in reporting that they were not in this state. Hence, they would not be demonstrating a confusion between imagining and perceiving. Rather, they would be confused about the nature and source of the imagery and perhaps not adequately equipped, pre-theoretically, to demarcate voluntary from involuntary imagining. If so, the upshot of these experiments seems to be that in cer-

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[17] For a discussion of unconscious imagery see Nanay (2018). By defining mental imagery as 'perceptual processing not triggered by corresponding sensory stimulation' in a given sense modality, Nanay takes such imagery to be prevalent in perceptual experience. As such, he claims that cases involving voluntarily closing one's eyes and summoning some particular image are a special and unrepresentative case of the nature of imagery.

tain unusual contexts we can fail to distinguish involuntary imagery from perceptual experience, assuming such imagery does not count as perceptual. Again, any confusion here applies to the nature of the content and not the state.[18]

Can we rule out the possibility, where involuntary imagery is concerned, that subjects could make mistaken conclusions not about the content but *about the state* they are in by drawing on features of the content or misidentifying its source? That is, cases where subjects are in fact voluntarily imagining X but (falsely) take themselves to be having a perceptual experience of X *because* they (wrongly) take X to be real, perhaps because their experience of X seems to them to be involuntary?

If Wittgenstein was right to claim that we cannot visualise X and have a visual experience of X simultaneously, then this kind of case wouldn't be possible. I suspect, however, that Wittgenstein was wrong and that if one is voluntarily imagining X then one will normally be aware that they are, even where in unusual contexts one might become confused as to the nature of the content X. Consider the (unlikely) example of being on the sea in a fog and imagining a boat coming towards you, while simultaneously a real identical boat is dimly coming towards you. At what point does imagining stop and perceiving begin? If what I have been arguing is correct, the state of voluntary imagining will stop at the point where you are no longer exercising agential control over the image of the boat, even if the perceptual object had begun to partly constitute the content of your experience before that point.

Even if, therefore, you might at some point be unsure whether the content of your experience is perceptual or imagined, you should 'normally' be sure whether you are in a state of voluntarily imaging or not. For what it's worth, I am unsure how strong this claim should be: whether if you are voluntarily imagining then necessarily you are aware that you are. So for all I have said, it remains an open question whether you can be voluntarily imagining without being aware that you are, or whether you can think you are voluntarily imagining when you are not.

So in short, if they had been asked what state they were in when taking the object to be real, it's possible that some subjects would answer that they were imagining, if they still felt some sense of agential control; some subjects would answer that they were perceiving, given the real-seeming nature of the object; and some subjects might say that they are simultaneously imagining and perceiving.

The main point I want to make is simply that, in the unusual experimental contexts we are now considering, the images have become somehow untethered from the states that originally produced (or usually produce) them, and the Perky effect is primarily a result of (and unawareness of) different criteria governing the identification of states and contents. It is thus important, finally, to look more closely at the different metacognitive roles played by the phenomenal features of state and content in reality monitoring.

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[18] Another kind of potential confusion would be cases of daydreaming, which might start as voluntary imaginings before the images takes on a life of their own and we become increasingly immersed. If prompted, we might say we were imagining such and such even though the imagery has become more or less involuntary. Here, I suggest, we are using 'imagining' pre-theoretically to refer to voluntary and involuntary imagery.

4 Reality monitoring: state or content?

Until now I have been arguing that how we distinguish imagining from perceiving, considered as states, differs from how we distinguish images from percepts, considered as the content of these states. Specifically, the phenomenal features we appeal to as criteria vary between 'state awareness' and 'content awareness' such that, as we have just seen, in reality monitoring we might rely on features of the state or the content to make a conclusion about either state or content.

For example, vividness is one criterion that we might use to track the source and reality of different contents – images vs. perceptual experiences – while some sense of agency, perhaps combined with internally directed attention, is used to help differentiate imagining from perceiving. [19] In normal conditions, many of these criteria will fit together 'naturally'. A certain lack of vividness or detail naturally fits with imagined images, and when we are voluntarily visualising it will naturally seem that the imagery is the product of, and being sustained by, that act of imagining. This overlap in different types of criteria no doubt helps to explain why imagining and imagery – state and content – are so easily and frequently conflated in such discussions.

However, in unusual conditions, as in the above experiments or as arguably occur in certain pathologies, these various criteria may come apart: for example, the experienced state feels agential and to that extent imaginative, but the content of the state is very vivid and thus more like a percept.[20] We might, in such cases, rely either on the apparently perceptual nature of the content to conclude that we are in a perceptual state – say, its relative vividness, detail, or saturation – or we might defer to our feeling (or memory of the feeling) of agency to conclude that the image is a product of voluntary imagining.

The unusual reality monitoring confusions we see in the Dijkstra experiments do not tell us much about reality monitoring in general, however, since the difference between the states of imagining and perceiving is usually evident and since we normally rely on a variety of criteria that 'fit' together naturally. Even in the problematic case of an image trace being recruited perceptually, of an image 'taking on' properties of a congruent perceptual stimulus, or of an involuntary image being mistaken for a percept, we have possible confusions about the nature of the content. But we do not necessarily mistake one state for another.

In conclusion, I have argued that it is crucial that we distinguish state from content, and voluntary from involuntary imaginings, in order to explain how we generally tell the difference between imagination and perception and to explain cases where we apparently confuse the two. The interaction of various criteria in reality monitoring points to the role of a number of different factors – phenomenal and non-phenomenal – involved in identifying and distinguishing content and state. [21] In this paper I

[19] For the role of vividness in source monitoring see e.g. Gonsalves et al. (2004), Holmes and Matthews (2005), Johnson (2006).

[20] For discussion of relevant pathologies see Currie and Ravenscroft (2002); Metcalfe et al. (2012); Gerrans (2014).

[21] See Farkas (2013), Dokic & Martin (2015) for interesting and contrasting discussions of some of these issues as they relate to the metacognitive 'sense of reality'.

have only been concerned with phenomenal features, but this is enough to suggest that there is unlikely to be just one reality monitoring mechanism, such as a 'reality threshold', operating primarily on just one feature of experience, such as vividness.

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Declarations

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