

## Peacocke's trees

Boyd Millar

**Abstract** In *Sense and Content*, Christopher Peacocke points out that two equally-sized trees at different distances from the perceiver are normally represented to be the same size, despite the fact that in a certain sense the nearer tree *looks bigger*; he concludes on the basis of this observation that visual experiences possess irreducibly phenomenal properties. This argument has received the most attention of all of Peacocke's arguments for separatism—the view that the intentional and phenomenal properties of experiences are independent of one another. However, despite its notoriety, the argument is widely misunderstood and underappreciated. I argue that once the structure of the argument is clarified and the replies that have been offered are considered closely, one must conclude that the trees argument is successful.

**Keywords** Phenomenal consciousness · Intentional content · Perception

Philosophers commonly distinguish between a perceptual experience's intentional content—what the experience is about, or what it represents—and its phenomenal character—what the experience is like for the subject. It was once popular to hold that the intentional content and phenomenal character of a perceptual experience are independent of one another.<sup>1</sup> In recent years, however, this view, which I'll call *separatism*,<sup>2</sup> has become increasingly marginalized. A large number of philosophers have argued, for a variety of reasons, that intentional content and phenomenal character are necessarily connected—some maintaining that phenomenal character can be reduced to intentional content, others that content determines or fixes phenomenal character,

---

<sup>1</sup> The view was defended some time ago by [Husserl \(1900/1970, pp. 563–569\)](#), and more recently by [Peacocke \(1983\)](#) and [Block \(1990, 1996\)](#).

<sup>2</sup> Following [Horgan and Tienson \(2002, p. 520\)](#).

and still others that phenomenal character determines or fixes content.<sup>3</sup> While there is nothing approaching a consensus regarding the exact nature of the relationship between the intentional content and phenomenal character of an experience, there does seem to be a growing consensus that these two things are *not* independent of one another. That is, there is a growing consensus that separatism is false.

In this context there is little motivation for philosophers to take separatism seriously, and as a result there is a danger that the arguments that have been offered in defense of separatism are not receiving the attention they deserve. In fact, there seems to be a pervasive assumption that the arguments for separatism have already been answered and don't require much in the way of further attention. It is the contention of the present paper that this assumption is mistaken. I believe that the arguments for separatism are much better than they are generally given credit for, and to illustrate this point I'm going to focus on a particularly well-known example. In *Sense and Content*, Christopher Peacocke points out that a visual experience of two equally-sized trees at different distances from the perceiver normally represents the trees to be the same size, despite the fact that in a certain sense the nearer tree *looks bigger*; on the basis of this observation he concludes that visual experiences possess irreducible phenomenal properties (1983, Chap. 1). I'll call this argument the *trees argument*. It has received the most attention of all of Peacocke's separatist arguments, and is often held up as an example of just how inadequate the arguments for separatism are.<sup>4</sup> However, despite its notoriety, the trees argument is widely misunderstood and underappreciated. I will argue that once the structure of the argument is clarified and the replies that have been offered are considered closely, one must conclude that the trees argument is successful. This point is crucial because while the relation between intentional content and phenomenal character continues to be the subject of a great deal of research, separatism is rarely treated as a viable option.

In the following section I will first explain some relevant terminology and then clear up two common misunderstandings regarding the nature of the trees argument. Then, in Sect. 2 I will present the trees argument as I understand it. Finally, in Sects. 3, 4 and 5 I will survey the available replies to the argument and explain why each is inadequate.

## 1 Common misconceptions

The trees argument is concerned with the intentional and phenomenal properties of visual experiences, so we first need to get clear on the meaning of these terms. What it's like to be in any given state—its phenomenal character—is usually quite complex. For instance, if you look at a red square painted on an otherwise white wall, there will be something it's like for you to see the white portion of the wall, and something different it's like for you to see the red portion of the wall. We can call these

<sup>3</sup> See, for example, Tye (1995), Lycan (1996), Siewert (1998), Byrne (2001), Horgan and Tienson (2002), and Chalmers (2004).

<sup>4</sup> See, for example, Byrne (2001) and Chalmers (2004).

distinguishable components or aspects of the *global* or overall phenomenal character of a visual experience *local phenomenal properties*.<sup>5</sup> Or, since we're concerned exclusively with perceptual experience here, we can call these properties *sensory qualities*. The intentional content of a perceptual experience is also usually complex: a typical visual experience will represent the presence of various objects, as well as the size, shape and colour of these objects and their positions relative to the subject. Accordingly, we can call the different components or aspects of the overall intentional content of an experience *intentional* or *representational properties*. For example, when you look at a red square painted on a white wall, the representation of the red square is one representational property instantiated by your experience, while the representation of the white background is another.

With this terminology in place we can state the separatist's view of visual experience more clearly. The separatist is committed to three claims:

- (1) Visual experiences instantiate sensory qualities that are distinct from their intentional properties (i.e. sensory qualities cannot simply be identified with intentional properties).
- (2) A visual experience's intentional properties do not determine or fix the sensory qualities it instantiates.
- (3) A visual experience's sensory qualities do not determine or fix the intentional properties it instantiates.

In the first chapter of *Sense and Content*, Peacocke defends each of these three claims; however, it's not always clear which of his arguments are intended to establish which of these claims. So, before turning to the details of the trees argument, we should clarify two potential points of confusion.

First, the trees argument is sometimes mistakenly assumed to be an attempt to show a difference in intentional content where there is no difference in phenomenal character.<sup>6</sup> This assumption is natural enough. If you wanted to show that (2) is true, the simplest strategy would be to point to ordinary examples of experiences that possess the same intentional properties but instantiate different sensory qualities. And, in fact, Peacocke employs just this strategy: he claims that if you look at an array of pieces of furniture first with only one eye, and then with both eyes, your two visual experiences will differ phenomenally but instantiate precisely the same intentional properties (1983, pp. 13–16). He also attempts to establish (3) by pointing to the reverse case: he claims that two different experiences of a wire cube can have the same sensory qualities and yet instantiate different intentional properties (1983, pp. 16–17). One might be tempted, then, to think that the trees argument is intended to work in a similar fashion. However, Peacocke explicitly denies any such interpretation—towards the end of the first chapter he says the trees example was not a case where “the additional characterization apparently omitted by representational properties was something which could vary even though representational content is held constant” (1983, p. 13). In other words, the trees example is not intended to

<sup>5</sup> The global/local terminology is from Chalmers (2006, pp. 54–55).

<sup>6</sup> For instance, this is how Chalmers (2004, p. 160) interprets the argument.

be a case where we have the same intentional properties but different sensory qualities.

A second common misunderstanding is to assume that the purpose of the argument is to establish (2), rather than (1). Byrne (2001, pp. 220–224), for instance, while recognizing that the trees argument is not intended to involve a phenomenal difference where there is no intentional difference, still interprets the argument as an attempt to show that an experience’s intentional properties do not determine its phenomenal properties. However, Peacocke’s stated intention is to show “that every experience has some sensational properties” (1983, p. 8). And since he defines sensational properties as “properties an experience has in virtue of some aspect—other than its representational content—of what it is like to have that experience” (1983, p. 5) it’s clear that his primary purpose is to show that experiences have phenomenal properties that are *distinct from* their representational properties. Moreover, when he introduces the trees argument, Peacocke continually states that the point at issue is whether there are phenomenal properties of visual experiences that are not “captured by” (1983, p. 10) or “exhausted by” (1983, p. 11) their representational properties; he does *not* say that the issue is whether representational properties determine phenomenal properties. Of course, Peacocke does go on to claim that an experience’s intentional and phenomenal properties do not determine one another. However, he recognizes that the trees argument does not establish this particular conclusion: as evidence for this claim about determination he appeals not the trees argument, but only to the furniture-array and wire-cube examples (1983, p. 23).

To understand the trees argument, then, we need to be clear that the conclusion of the argument is more limited than that of the other arguments presented in the first chapter of *Sense and Content*. While the furniture-array example is intended to establish (2), and the wire-cube example is intended to establish (3), the trees example is only intended to establish a weaker claim, namely (1). Establishing (1) is important to the separatist, because if (1) is false then separatism is false; but (1) is simply one component of the separatist’s view. Even if (1) is true separatism might be false, since (2) or (3) might still be false. In other words, the trees argument is only supposed to show that intentional and phenomenal properties are distinct from one another and says nothing about how these two things are related. An experience’s intentional properties might determine its sensory qualities, or an experience’s sensory qualities might determine its intentional properties—neither possibility is ruled out by the trees argument. However, while (1) is clearly a weaker claim than either (2) or (3), it is nonetheless an important and controversial thesis. In particular, (1) is inconsistent with *strong representationalism*—the view that phenomenal properties are identical with a certain kind of intentional property—which has been defended by the likes of Tye (1995), Dretske (1995) and Lycan (1996).<sup>7</sup> Consequently, even though the trees argument seeks to establish only one tenet of separatism, if it is successful it achieves a good deal from the separatist’s perspective.

<sup>7</sup> “Strong representationalism” is used this way by Tye (2007, p. 598).

## 2 The argument

The stated target of the trees argument is the *extreme perceptual theorist* who subscribes to the *Adequacy Thesis* (AT)—the thesis that the phenomenal character of a visual experience can be characterized completely “by embedding within an operator like ‘it visually appears to the subject that . . .’ some complex condition concerning physical objects” (1983, p. 8). Elsewhere, Peacocke describes the AT as the thesis that the phenomenal character of a visual experience is “exhausted by a specification of its representational content” (1983, p. 11). In other words, the extreme perceptual theorist believes that a visual experience’s phenomenal properties are nothing over and above its representational properties—that the former can be captured entirely in terms of the latter. Peacocke thinks such a view can be refuted with a rather simple example:

Suppose you are standing on a road which stretches from you in a straight line to the horizon. There are two trees at the roadside, one a hundred yards from you, the other two hundred. Your experience represents these objects as being of the same physical height and other dimensions . . . Yet there is also some sense in which the nearer tree occupies more of your visual field than the more distant tree. This is as much a feature of your experience itself as is its representing the trees as being the same height . . . [This feature of your experience] presents an initial challenge to the Adequacy Thesis, since no veridical experience can represent one tree as larger than another and also as the same size as the other. The challenge to the extreme perceptual theorist is to account for these facts about size in the visual field without abandoning the AT. (1983, p. 12)

How exactly, then, does this example undermine the adequacy thesis? As I understand it, the trees argument has two steps. The first step is to point to a certain phenomenal property or sensory quality instantiated by the experience that is supposed to be difficult for the extreme perceptual theorist to reduce to some specific intentional property instantiated by the experience. The second step is to then consider various proposals concerning which intentional properties might plausibly be identified with the phenomenal property in question, and then to explain why none of these proposals are ultimately acceptable. Such an interpretation, I think, neatly corresponds to how Peacocke actually proceeds. He first identifies a particular phenomenal property with respect to which one’s visual experience of the two trees differs, and claims (in the section just quoted) that the example presents an “initial challenge” for the extreme perceptual theorist—the challenge being to reduce this specific difference in phenomenal character to some specific difference in the way the trees are represented. Peacocke then goes on to consider various suggestions the extreme theorist could make in response, and rules them out for various reasons (1983, pp. 17–22). According to this interpretation of the argument, then, very little is achieved by the initial description of the visual experience of the two trees. All the difficult philosophical work goes on at step two; the success of the argument really depends on whether one can give solid reasons for rejecting the different proposals that can be made on the extreme perceptual theorist’s behalf.

The first step, then, consists merely in pointing to a particular phenomenal difference between one’s experience of the two trees. In the present example, what it’s like

to see the nearer tree is different from what it's like to see the farther tree in a certain obvious respect. For his part, Peacocke describes this difference in terms of the *visual field*—he says there is “some sense in which the nearer tree occupies more of your visual field than the more distant tree” (1983, p. 12). We should acknowledge, then, that some philosophers consider talking about the “visual field” in this way problematic.<sup>8</sup> However, Peacocke clearly doesn't intend his claim to be controversial. He doesn't argue for the claim; he assumes it will be obvious to anyone who's had an experience of the relevant sort. Consequently, the best thing to do is to interpret his talk of the “visual field” simply as a convenient way of talking about the phenomenal properties instantiated by the experience. So, when Peacocke says “the nearer tree occupies more of your visual field than the more distant tree,” we should assume that he is merely making the uncontroversial point that one's experience of the two trees differs phenomenally in a certain obvious respect.<sup>9</sup> In other words, Peacocke is merely pointing out that there is a certain specific phenomenal property with respect to which one's experience of the two trees differs (and even if this isn't all that Peacocke intends, it's all that the argument requires). Peacocke calls the phenomenal property in question “size in the visual field” (1983, p. 12) but it would be simpler to call it *phenomenal size*. Stated in these terms, we would say that the first step of the argument is simply to call attention to the obvious fact that one's experience of the two trees differs with regard to phenomenal size.

The “initial challenge” of the trees example is that the particular phenomenal property isolated in the example seems to be, at least at first glance, difficult to reduce to any particular intentional property. The difficulty is that the physical features and relations that are most obviously included in the content of visual experience—things such as shape, size and relative distance—don't match up with phenomenal size. For instance, you can't identify phenomenal size with the representation of physical size because the representation of physical size can remain constant despite changes in phenomenal size (as the trees example illustrates). Nor can you identify phenomenal size with the representation of relative distance, since the representation of relative distance can remain constant despite changes in phenomenal size (for example, imagine a case where you see two trees, one larger than the other, at precisely the same distance from you). Nor can you identify phenomenal size with the representation of *both size and distance*, since phenomenal size can remain constant even when experiences represent objects of different sizes at different distances from the perceiver (for example, in a case where you see two trees, one of which is slightly larger and slightly farther away than the other, there will be no difference with respect to phenomenal size). Someone who wants to hold onto the thesis that the phenomenal character of a visual experience is “exhausted by a specification of its representational content” is thus faced with a problem: to what intentional property can this particular phenomenal property be reduced?

<sup>8</sup> For example, Byrne (2001, pp. 222–224) takes Peacocke's talk of “regions of the visual field” to be just another way of talking about sense-data—dubious entities that the subject of a perceptual experience is supposed to be aware of.

<sup>9</sup> Somewhat confusingly, Peacocke's language suggests that the trees themselves take up space in the visual field, but this can't be what he intends (as Meehan (2002, p. 633) points out).

The second step of the trees argument is to consider the most plausible responses that someone might make to this initial challenge and explain why such responses don't succeed. That is, after isolating the phenomenal property we're calling phenomenal size and explaining why it constitutes a challenge for someone who holds phenomenal properties to be identical with intentional properties, we next need to consider how such a person might respond to this challenge. If none of these responses are plausible then we may conclude that the sensory qualities instantiated by an experience are distinct from its intentional properties. But what are the relevant options? We've just seen that phenomenal size cannot be identified with the representation of either physical size or distance from the perceiver, since these can remain constant despite changes to phenomenal size. However, it seems correct to say that whenever there is some change with respect to phenomenal size there is always some change with respect to the representation of *either* size *or* distance. A natural suggestion, then, would be that phenomenal size is identical to the representation of the *relation* between the size of an object and its distance from the subject. An obvious way to express this thought would be to say that phenomenal size is identical to the representation of the visual angle an object subtends.<sup>10</sup> Such a suggestion cannot be ruled out as easily as those concerning the representation of size or distance alone; at first glance, changes to phenomenal size seem to correspond to changes to the visual angle an object subtends. As such, appealing to visual angle is the most straightforward strategy for meeting the "initial challenge," and perhaps unsurprisingly has been the most popular response to Peacocke's argument. Thus, if the trees argument is ultimately going to succeed, the separatist has to provide good reasons for denying that phenomenal size is identical with the representation of visual angle.

### 3 The visual angle reply

In *Sense and Content*, Peacocke responds to the possibility that phenomenal size is merely the representation of the visual angle an object subtends by pointing out that most people have no concept of visual angle. He says "it is a conceptual truth that no one can have an experience with a given representational content unless he possesses the concepts from which that content is built up . . . This conceptual point entails that adding contents concerning the visual angle to representational content to save the AT is illegitimate: for an unsophisticated perceiver who does not have the concept of subtended angle it is nevertheless true that one object takes up more of his visual field than another" (1983, pp. 19–20). In other words, Peacocke claims here that no properties and relations can be represented by an experience unless the subject of the experience possesses concepts of those properties and relations (i.e. the content of visual experience is *conceptual content*). Such a view immediately rules out the possibility of reducing phenomenal size to the representation of visual angle since very few people have any concept of visual angle.

---

<sup>10</sup> The visual angle subtended by an object is the angle between two lines extending from the opposite edges of the object through the center of the pupil. See, for example, [Levine \(2000, pp. 257–258\)](#).

The obvious problem with Peacocke's answer to the visual angle reply is that one can simply deny the assumption that properties and relations cannot be represented by an experience unless the subject of the experience possesses concepts of those properties and relations.<sup>11</sup> The suggestion that an individual's visual experience can represent visual angle even though that individual lacks the relevant concept has been developed into a response to the trees argument by Michael Tye (1991, pp. 129–130; 1992, pp. 172–173; 1996, pp. 123–125; 2000, pp. 78–79; 2002, p. 453). With respect to Peacocke's example, Tye agrees that there is a certain sense in which the nearer tree looks larger than the one that's farther away even though the trees are represented as being the same physical size. But he avoids Peacocke's conclusion that an experience instantiates irreducible phenomenal properties by claiming that "the nearer tree (or its facing surface) is represented as being *larger from here*, while also being represented as being the same objective size as the further tree" (2002, p. 453). Now, strictly speaking, it doesn't make any sense to say that one thing is "larger from here" than another thing, but Tye adds that this phrase should be understood as the claim that "one item subtends a larger visual angle relative to the eyes of the viewer" (2002, p. 453). In other words, Tye's response to the trees argument is to claim that the nearer tree is represented as subtending a larger visual angle than the farther tree. Tye then claims that Peacocke's reason for rejecting this response is inadequate:

Peacocke rejects this proposal on the grounds that experiences like mine can be had by people who lack the concept of a visual angle. My reply is that the perceptual experience represents the feature, being larger from here, nonconceptually. For a person to undergo an experience that represents one thing as larger relative to his viewing point than another, it suffices that the encoding feature of the experience (larger number of filled array cells, if the representational vehicle has an array-like structure) suitably track or causally covary with the instantiation of the viewpoint-relative relation. The person does not need to have any cognitive grasp of subtended angles. (2002, p. 453)

This suggestion that visual angle can be represented nonconceptually, then, constitutes a significant obstacle to the trees argument.<sup>12</sup> The second stage of the argument can't succeed unless we can rule out the proposal that phenomenal size is identical to the representation of the visual angle an object subtends, but all Peacocke says by way of undermining this proposal is that most people don't possess the relevant concept.

Many philosophers find this appeal to the nonconceptual representation of visual angle plausible.<sup>13</sup> However, there is a serious difficulty with the reply that ultimately makes it untenable: the appeal to nonconceptual representation requires that there be a *causal correlation* between phenomenal size and visual angle, but there is no such

<sup>11</sup> Gilbert Harman (1990, p. 38) was perhaps the first to make such a proposal in connection with the trees argument.

<sup>12</sup> Meehan (2002, pp. 631–635) and Dretske (2003, pp. 77–79) are two others who reject the trees argument by appealing to the nonconceptual representation of visual angle.

<sup>13</sup> For instance, Byrne (2001, p. 220) calls this response valuable and Chalmers (2004, p. 160) calls it plausible—as Tye says himself, "it is fair to say that a good many philosophers are persuaded" by the response (2000, p. 70).

correlation. Tye claims that in order for one's experience to nonconceptually represent visual angle "it suffices that the encoding feature of the experience . . . suitably track or causally covary with the instantiation of the viewpoint-relative relation." And for the sake of argument we can grant this point. However, even if it were true that our visual experiences represented visual angle in virtue of possessing some feature that was causally correlated with the visual angle subtended by an object, it wouldn't follow that phenomenal size is identical to the representation of visual angle. To establish *that* conclusion there would have to be, in addition, a correlation between phenomenal size and that feature of the experience causally correlated with visual angle—that is, the phenomenal property we're calling phenomenal size would itself have to be causally correlated with visual angle. After all, it might be true that our visual experiences represent the spectral reflectance of surfaces even though most of us lack the concept *spectral reflectance*; and it might be true that our experiences represent spectral reflectance simply because some feature of those experiences "tracks" the spectral reflectance of a surface. But, of course, it would be totally implausible to claim that phenomenal size is identical to the representation of spectral reflectance precisely because there is no causal correlation between phenomenal size and a surface's spectral reflectance. Consequently, the visual angle reply is only plausible if there is a causal correlation between phenomenal size and the visual angle an object subtends. In other words, the reply only works so long as any differences in the visual angle an object subtends produce differences in phenomenal size and any differences in phenomenal size are produced by differences in the visual angle an object subtends (at least under "normal" or "optimal" conditions).<sup>14</sup>

Tye is no doubt taking for granted that there is just such a causal correlation between phenomenal size and visual angle; and this assumption may be quite natural. Yet, the simple fact that people have two eyes rather than one is inconsistent with this assumption. Whenever your eyes are not equally distant from an object you happen to be looking at, that object will subtend a different visual angle relative to each eye. Consequently, there will very often be cases where there is a specific phenomenal size associated with a given object even though there is no such thing as *the* visual angle subtended by that object; and so it follows that there can't be a correlation between phenomenal size and the visual angle an object subtends.<sup>15</sup> One might want to suggest that certain perceptual states represent the different visual angles subtended relative to each eye, but then one couldn't say that phenomenal size is identical to the representation of these two different angles because that would require two different phenomenal

---

<sup>14</sup> This is not to assume that the representation of visual angle will always be veridical. On Tye's view, perceptual sensations nonconceptually represent physical properties and relations in virtue of being causally correlated with them, but "when optimal conditions do not obtain, there is *misrepresentation*" (1995, p. 101).

<sup>15</sup> One might think that the visual angle subtended relative to each eye will be "close enough" in most cases, but even relatively small differences in the distance of a given object from each eye can make for a significant phenomenal difference. To test this for yourself, tilt your head to the right or left while keeping your eyes focused on a particular object, and then alternate between closing your right eye and left eye. It's also important to note that there's nothing abnormal or sub-optimal about situations where an object casts two significantly different retinal images—in fact, the proper functioning of your visual system depends on such disparities in order to acquire detailed depth information.

“images” of the object (i.e. a double vision experience—the problem being that it’s common for an object to subtend different angles relative to each eye without producing a double vision experience). Alternatively, one might respond to this difficulty by suggesting that in such cases the visual system splits the difference between the two angles. That is, one could say that one’s visual experience doesn’t represent the visual angle an object subtends *per se*, but rather the midpoint between the angles the object subtends relative to each eye (or, alternatively, the angle the object subtends relative to the midpoint between the two eyes). One could then suggest that phenomenal size is identical with the representation of the midpoint between the angles an object subtends relative to each eye. However such a suggestion would be problematic because once you build an object’s relation to each individual eye into the complex relation supposedly represented by visual experience, you don’t get the requisite correlation between this relation and phenomenal size. Since an object can cause an experience instantiating the same phenomenal size whether it’s viewed with one eye or two, there just isn’t a unique correspondence between phenomenal size and *any* relation an object bears to *both* eyes (or to a single point between the two eyes).<sup>16</sup>

The only way to get around this difficulty would be to maintain that conditions are not “normal” or “optimal” when an object is viewed with only one eye. However, such a claim would be implausible because a consequence would be that a monocular visual experience *cannot* accurately represent the visual angle subtended by an object. That is, this claim would require that when you view an object with one eye you don’t (and can’t) accurately perceive the visual angle the object subtends relative to the relevant eye; instead, your experience inaccurately represents that the object bears a certain specific relation to both eyes even though one of your eyes is closed. In addition, the claim that monocular experiences cannot accurately represent the visual angle an object subtends would have the implausible consequence that such experiences cannot accurately represent both the size of an object and its distance from the relevant eye (since the visual angle subtended by an object is uniquely determined by its size and distance from the perceiver it wouldn’t make sense to claim that a particular experience inaccurately represents visual angle but accurately represents both size and distance). It’s also important to note that even when you have both eyes open a significant region of the visible scene in front of you is visible only to your left eye, and a significant region is visible only to your right eye—you can demonstrate to yourself just how significant these regions are by looking at an array of objects and closing each eye one after the other. Consequently, if one claims that conditions are sub-optimal whenever an object is seen with only a single eye, and that therefore in such conditions visual angle is misrepresented, then one would also have to assert the following: when you have both eyes open your visual experience misrepresents the visual angle subtended

<sup>16</sup> Even if we ignore the complication of binocular vision, it’s not obvious that there’s a causal correlation between visual angle and phenomenal size. Consider one’s experience when subject to the moon illusion: there is a significant difference with respect to phenomenal size when the moon is seen near the horizon and when it is viewed higher in the sky. This is only possible because environmental factors *other than visual angle* play a causal role in determining phenomenal size when one looks at the moon (see, for example, [Ross and Plug 2002](#)). Since it would be implausible to assume that such environmental factors have a causal influence over phenomenal size only when one looks at the moon, it’s reasonable to think that these factors will *commonly* or *normally* play a role in determining phenomenal size when viewing any given object.

by all the objects visible to one eye alone. And, of course, it would also follow that your experience misrepresents either the size or distance of all these same objects. However, such a claim would ascribe a significant degree of misrepresentation to just about every visual experience you have in just about any situation; and it's simply incredible to charge the human visual system with such widespread and significant error.

The visual angle reply thus faces a considerable difficulty: because humans have two eyes, very often an object will subtend a different visual angle relative to each eye. So, the extreme perceptual theorist can't say that phenomenal size is identical with the representation of visual angle *per se*, but will have to appeal to a more complex relation that includes the visual angle subtended relative to each eye (e.g. she can appeal to the midpoint between the two angles, or to the angle subtended relative a point between the eyes). However, once the move of appealing to a relation an object bears to both eyes is made, there's a different problem: a monocular visual experience of a particular object can be exactly similar with regard to phenomenal size as a binocular experience of that object. Thus it follows that there can't be a causal correlation between phenomenal size and any relation the object bears to both eyes, even under normal conditions. Moreover, the only way around this difficulty—to treat the conditions of monocular vision as sub-optimal—has the unacceptable consequence that human visual experiences regularly misrepresent the environment to an incredible extent. Consequently, we should conclude that the simple fact that humans have two eyes makes the visual angle reply ultimately unacceptable.

#### 4 Lycan's reply

If it isn't plausible to identify phenomenal size with the representation of the visual angle an object subtends then the extreme perceptual theorist is in a difficult position. Size, distance, and visual angle appear to be the only ordinary physical properties and relations that are relevant to the trees example. If the phenomenal difference in our experience of the two trees can't be reduced to the representation of one of these properties or relations, then it looks like there aren't any ordinary physical properties or relations left to appeal to. One solution to this problem, offered by Lycan, is to deny that "everyday environmental things are *all* that are represented in vision" (1996, p. 144).

Lycan's reply to the trees argument is that in addition to representing the presence of equally sized trees at different distances from the subject, one's visual experience also represents the presence of unequally sized "colored shapes." These coloured shapes are perceived to be external objects existing out there in the environment, but they are not "everyday" objects in that they are represented as being something less than "robustly physical" (Lycan 1996, pp. 152–153). One might object that when one looks down the road one doesn't see four different items, two trees and two tree shapes. But according to Lycan, "a single apparent color patch in one's visual field represents not just one kind of external object but at least two at the same time (1996, p. 144). That is, while there are only two apparent colour patches in one's visual field, each of these represents both a tree and a tree shape, and represents these things to be different

sizes (since one's experience represents the two trees to be the same size, but the two tree shapes to be different sizes). Accordingly, Lycan concludes that the phenomenal difference in our experience of the two trees is reducible to the representation of two unequally sized tree shapes: "the experiential features Peacocke claims to be sensational rather than representational are represented contents after all, though the representata are not physical objects of the everyday sort" (1996, p. 152).

To understand Lycan's reply we have to understand what he means when he says that "a single apparent color patch" in the visual field represents two different things at once. Lycan's view is that any given sensation in any sense modality can have "more than one layer of intentional objects" if it represents one object *by* representing another (1996, p. 144). In the case of vision, he claims that one's experience represents ordinary objects arranged in a certain manner *by* representing coloured shapes arranged in a certain manner. As Lycan puts the point, "in vision, I see an array of colored shapes, and by seeing these I see a room full of furniture, and perhaps by seeing this I see something still more concept-laden" (1996, p. 149). But why should we think that our visual experience represents the presence of ordinary objects by representing the presence of coloured shapes? Lycan's argument here appeals to certain "peep box illusions." For instance, he points to a certain Victorian toy consisting of a small box with a peephole in one end (Lycan 1996, p. 150). When you look through the peephole in this box you see what looks to be a miniature furnished room, but when you take the top off the box the contents are revealed to be a jumble of disconnected bits of wood, wire and cloth (much like the Ames chair illusion). Lycan claims that when you look through the peephole the content of your visual experience is veridical in certain respects and illusory in others. To account for this fact, he argues, we must say that your experience is veridical insofar as it represents certain coloured shapes that really are there in front of you, and illusory insofar as it represents miniature pieces of furniture that don't exist (Lycan 1996, p. 150). In other words, Lycan thinks that this sort of illusion provides evidence for the claim that we represent the presence of ordinary objects *by* representing the presence of coloured shapes.

Lycan's response to the trees argument, then, is to say that our experience represents the presence of two equally sized trees by representing the presence of two unequally sized tree shapes. The tree shapes in question are represented as external objects of a strange sort, distinct from the actual trees (Lycan 1996, p. 157); and since in the case at issue there aren't two strange tree shapes of different sizes out there in the environment, the relevant layer of content is illusory (Lycan 1996, p. 152). Consequently, according to Lycan, the trees example is the converse of the peep box illusion. Lycan claims that when you look into the peep box your experience accurately represents the presence of various coloured shapes but thereby inaccurately represents the presence of various tiny pieces of furniture. In the trees example, however, your experience inaccurately represents the presence of two unequally sized tree shapes and thereby accurately represents the presence of two equally sized trees. Consequently, by positing an illusory layer of content wherein one's visual experience represents the presence of two unequally sized tree shapes, Lycan can account for the difference in phenomenal size in wholly representational terms. On Lycan's view, the difference in phenomenal size present in the trees example is reducible to the (inaccurate) representation of two tree shapes of different sizes.

There are at least two reasons for rejecting Lycan's reply. The first is that Lycan's argument for his "layering thesis" doesn't appear to be sufficient. His reply to the trees argument assumes that we see ordinary objects *by* seeing coloured shapes, and the only argument he provides for this assumption is to point to the peep box illusions just described. However, these peep box illusions don't seem to provide evidence for his assumption. Remember that Lycan's view is that the very same "apparent color patch" in one's visual field can represent both a tree shape and a tree at the same time. The peep box illusion, though, isn't a case where a specific visual sensation represents two different objects. Lycan claims that when we look into the peep box our visual experience represents "shapes and textures that are physically real" and also miniature pieces of furniture that are not real (1996, p. 150). But to establish his layering thesis with respect to vision he has to show that the very same visual sensation is both veridical insofar as it represents a real shape, and illusory insofar as it represents some non-existent object. However, the peep box illusion just doesn't provide an example of this sort. Consider that coloured portion of the visual field that corresponds to our perception of a chair in the peep box. Does this colour patch both accurately represent a chair shape and inaccurately represent a chair? Clearly it does not, since there is no object in the box with the shape of a chair. The only accurate element of our visual experience in such a case is that it represents the presence of a number of small pieces of wood that really are there in the box. So this is not a case where the very same colour patch inaccurately represents the presence of a chair by accurately representing the presence of a chair shape.

A second reason for rejecting Lycan's reply is that it requires that one's visual experience of the two trees represent a logically impossible state of affairs. Consider what Lycan says regarding the satisfaction conditions for the "tree shape layer" of content. In a discussion of Lycan's proposal, Stalnaker points out that in order to understand what the tree shape layer of content is supposed to represent, we need to know "what the world would have to be like in order for the representation to be veridical" (1996, p. 106). In response, Lycan says: "think of a gigantic peep box that convincingly presents a whole facing environment to the subject by containing large cloths and cutouts and facades arranged in just the right ways" (1996, p. 156). If the subject in the trees example were looking into an enormous peep box instead of down a road at real trees, Lycan says, the tree shape layer of content would be veridical. Lycan (1996, p. 156) also endorses Stalnaker's suggestion that the tree shape layer of content would be veridical if the subject were looking at two physical images of different sizes (e.g. in a mirror, or projected onto a screen). A striking fact about these two suggestions is that in both cases the layer of content concerning the actual physical trees (the tree layer) would be illusory. If one is looking into a peep box at tree facades then one isn't looking at two trees, and so the tree layer of content is inaccurate. Similarly, if one is looking at images of trees in a mirror or on a screen then one's experience isn't being caused by the presence of the two trees down the road where they appear to be, and once again the tree layer of content is inaccurate. Accordingly, it seems that the only conditions in which the tree shape layer of content would be satisfied are conditions in which the tree layer would not be satisfied, and vice versa. In other words, the way the tree shape layer represents the world to be is inconsistent with the way the tree layer represents the world to

be.<sup>17</sup> Consequently, since the suggestion that our visual experience of the two trees represents an impossible state of affairs is extremely implausible, we ought to reject Lycan's response.<sup>18</sup>

## 5 Byrne's reply

A last response to the trees argument that we ought to consider is that offered by Byrne (2001, pp. 220–227). Byrne's primary criticism of Peacocke is that his description of the trees example doesn't rule out *intentionalism*—the view that “the propositional content of perceptual experiences in a particular modality (for example, vision) *determines* their phenomenal character” (2001, p. 204). According to Byrne (2001, pp. 223–224), Peacocke's talk of different “regions of the visual field” and their properties is simply another way of talking about sense-data. Sense-data, here, are to be understood as objects of one's visual experience, but unusual objects in that they are the sort of thing that we never misperceive (or, as Byrne (2001, p. 224) says, at least that's how the sense-datum theorist ought to think of them). As such, Byrne can argue that, if we grant the existence of sense-data, then whenever there is a difference in sense-data there will be a difference in the intentional content of one's experience: the sense-data are represented by the experience (since they're objects of the experience) and represented to be just as they are, so whenever the sense-data change there will automatically be a change in intentional content. With respect to the trees example, then, it follows that the difference in “size in the visual field” would have to be included in the content of the experience, and so Peacocke's description of the example is perfectly consistent with intentionalism.

The first thing we should say in Peacocke's defence is that the trees example isn't intended to demonstrate that intentionalism is false. Byrne is concerned with whether a perceptual experience's intentional properties determine its phenomenal properties, but that isn't the focus of the trees argument. As I've already argued (Sect. 1 above), Peacocke intends the trees argument to establish only that experiences have phenomenal properties that are distinct from their representational properties—the argument concerns the *identity* issue not the *determination* issue. Consequently, one could grant Byrne's claim that Peacocke's regions of the visual field are really just sense-data (and therefore included in the content of visual experience) without affecting the conclusion of the argument. For, even if it were true that the different sized regions of the visual field were included in the content of the experience, we couldn't conclude from this fact that these regions of the visual field are merely intentional properties. The fact that some property is represented by an experience doesn't make that property

<sup>17</sup> At one point Lycan says that the tree shapes are represented as being “alongside or overlapping the ordinary physical objects” in the environment (1996, p. 157). But this doesn't make sense because if the tree shapes overlapped the trees you wouldn't be able to see the trees. Also, if the tree shapes are represented as being at the same location as the two trees, then how can one tree shape be represented as being larger than the other if they occupy exactly the same amount of room in the visual field as the equally sized trees?

<sup>18</sup> Even if you thought that some perceptual experiences can represent impossible states of affairs, surely you would have to admit that experiences with such content are rare. The trees example is a very simple, common perceptual situation and attributing contradictory content in such a case is unreasonable.

intentional—the tree’s greenness is represented by my experience, but its greenness isn’t therefore an intentional property of my experience. So, nothing Byrne says undermines the argument’s conclusion that an experience’s phenomenal properties cannot be identified with its representational properties.

But, of course, Peacocke also holds that an experience’s intentional content does not determine its sensational properties (even if he doesn’t think the trees argument establishes this conclusion). Do Byrne’s criticisms, then, undermine Peacocke’s general separatist view? If it were true that Peacocke’s regions of the visual field were really just sense-data and therefore objects of experience, it would seem to follow that they are included in the content of experience. As such, an experience’s intentional content would fix its sensational properties and separatism would be false. However, as I’ve already argued (Sect. 2), we don’t need to interpret Peacocke’s talk of different regions of the visual field as an appeal to sense-data. Rather, we can state the trees argument while only talking about phenomenal properties and thereby avoid Byrne’s criticisms. Sense-data are supposed to be things that the subject of an experience is aware of, and so a sense-datum theorist has to admit that sense-data are represented by the subject’s experience.<sup>19</sup> However, if one is only appealing to phenomenal properties one is not obviously forced to make a similar admission. From the fact that a subject has an experience that instantiates certain phenomenal properties it does not automatically follow that those phenomenal properties are represented by that very same experience. Consequently, if it’s possible to argue for separatism without appealing to sense-data then Byrne’s criticisms of Peacocke do not undermine separatism in general.

One might wonder, though, whether Byrne’s criticisms of Peacocke couldn’t be modified by substituting phenomenal properties for sense-data. Assume that the trees argument is correct and an experience’s sensory qualities are distinct from its intentional properties. Couldn’t Byrne argue that the sensory qualities instantiated by an experience are represented by that experience?<sup>20</sup> And if so, wouldn’t that mean that phenomenal variation without intentional variation isn’t possible and so separatism is false? The answer to the latter question is “no.” Even if it were true that the sensory qualities instantiated by an experience are included in the content of that very same experience, we would not be forced to give up separatism. The first move the separatist could make would be to allow for illusions regarding the sensory qualities instantiated by an experience. Byrne (2001, p. 224) says the sense-datum theorist cannot permit sense-data illusions, but that’s because sense-data are introduced to explain the sameness of phenomenal character in a case where a veridical and an illusory experience are phenomenally identical. If the sense-data theorist allows for sense-data illusions he or she undercuts his or her original motivation for introducing sense-data, since in that case the phenomenal similarity between a veridical and an illusory experience of sense-data would be left unexplained. However, since sensory qualities are

<sup>19</sup> See Byrne (2001, pp. 225–226).

<sup>20</sup> Byrne (2001, pp. 211–212) suggests something along these lines when he discusses the view that we are aware of *mental paint*—“the intrinsic properties of [an] experience by virtue of which it has the content it has” (Harman 1990, p. 38). Byrne points out that the view that we are aware of mental paint is consistent with intentionalism, so long as one thinks that mental paint is included in the content of the experience (in which case, the content of experience would be “partly reflexive”).

just aspects of an experience's overall phenomenal character and aren't introduced to explain the problem of illusion, there's no similar prohibition against allowing for illusions regarding sensory qualities. If sensory quality illusions are possible there could be two experiences, one that represents veridically the sensory qualities it instantiates and another that does not, that share their intentional content but differ with respect to their sensory qualities. As such, the possibility of sensory quality illusions would undermine the claim that intentional content determines phenomenal character.

In addition, there's a second move a separatist could make in the face of the suggestion that sensory qualities are included in the content of an experience: restrict the scope of the separatist thesis. Byrne himself makes just such a move when he discusses the representation of time. He points out that if the time at which an experience occurs is represented by the experience then no two experiences occurring at different times can have the same content (Byrne 2001 p. 203 n. 9). And if no experiences occurring at different times can have the same content, Byrne says (2001, p. 217 n. 25), then his argument in defence of intentionalism doesn't work. Byrne's solution is to restrict intentionalism to a claim about "equivalent content," where the contents of two experiences are *equivalent* "if and only if they only differ with respect to the represented times" (2001, p. 217 n. 25). The separatist can make this same move with respect to the representation of sensory qualities. He or she can say that the contents of two experiences are equivalent if and only if they only differ with respect to the represented sensory qualities, and then define separatism in terms of equivalent content. I'm not suggesting that we need to amend separatism along these lines; the point is simply that, if it's true that an experience represents the sensory qualities it instantiates then it would be reasonable for the separatist to restrict the scope of his or her thesis.

## 6 Conclusion

Ultimately, then, it seems that none of the various replies that have been offered to the trees argument is convincing. To recap: the purpose of the argument is to demonstrate that visual experiences instantiate phenomenal properties that are distinct from their intentional properties. The argument arrives at this conclusion through two steps. The first step is merely to point to a particular phenomenal property. What the example of looking at two equally sized trees at different distances from the subject does, then, is bring to our attention a specific phenomenal property (the property we've been calling phenomenal size) that, at least at first glance, does not appear to be reducible to any specific intentional property. The second step of the argument is to consider various proposals concerning what specific intentional property one might identify phenomenal size with, and to explain why such proposals ultimately fail. It's obvious that we can't identify phenomenal size with the representation of an object's size or with the representation of an object's distance from the perceiver. However, we've now also seen that the most natural suggestion, that phenomenal size is identical with the representation of the visual angle an object subtends, will not work either. Moreover, we've also seen that Lycan's proposal that phenomenal size can be reduced to the representation of coloured shapes fails as well. Finally, Byrne's charge that the argument depends on an appeal to sense-data appears to be mistaken, and the suggestion that

sensory qualities are included in the content of visual experience does not appear to represent a serious difficulty for the separatist.

Now, we should admit that the argument presented above does not demonstrate that it's *impossible* to reduce phenomenal size to some intentional property—it's at least possible that some as-yet-unthought-of proposal might ultimately succeed. Nevertheless, given that the most plausible proposals have been shown to be unworkable, we are entitled to conclude that perceptual experiences instantiate phenomenal properties that are distinct from their intentional properties.

## References

- Block, N. (1990). Inverted earth. In J. Tomberlin (Ed.), *Philosophical perspectives, 4: Action theory and philosophy of mind* (pp. 53–79). Atascadero, CA: Ridgeview.
- Block, N. (1996). Mental paint and mental latex. In E. Villanueva (Ed.), *Philosophical issues, 7: Perception* (pp. 19–49). Atascadero, CA: Ridgeview.
- Byrne, A. (2001). Intentionalism defended. *The Philosophical Review*, 110, 199–240.
- Chalmers, D. (2004). The representational character of experience. In B. Leiter (Ed.), *The future for philosophy* (pp. 153–181). Oxford: Clarendon Press.
- Chalmers, D. (2006). Perception and the fall from Eden. In T. Gendler & J. Hawthorne (Eds.), *Perceptual experience* (pp. 49–125). Oxford: Clarendon Press.
- Dretske, F. (1995). *Naturalizing the mind*. Cambridge, MA: MIT Press.
- Dretske, F. (2003). Experience as representation. In E. Sosa & E. Villanueva (Eds.), *Philosophical issues, 13: Philosophy of mind* (pp. 67–82). Boston: Blackwell.
- Harman, G. (1990). The intrinsic quality of experience. In J. Tomberlin (Ed.), *Philosophical perspectives, 4: Action theory and philosophy of mind* (pp. 31–52). Atascadero, CA: Ridgeview.
- Horgan, T., & Tienson, J. (2002). The intentionality of phenomenology and the phenomenology of intentionality. In D. Chalmers (Ed.), *Philosophy of mind: Classical and contemporary readings* (pp. 520–541). New York: Oxford University Press.
- Husserl, E. (1900/1970). *Logical investigations* (J. N. Findlay, Trans.). London: Routledge & Kegan Paul.
- Levine, M. (2000). *Fundamentals of sensation and perception*, 3rd edn. Oxford: Oxford University Press.
- Lycan, W. (1996). *Consciousness and experience*. Cambridge, MA: MIT Press.
- Meehan, D. (2002). Qualitative character and sensory representation. *Consciousness and Cognition*, 11, 630–641. doi:10.1016/S1053-8100(02)00016-8.
- Peacocke, C. (1983). *Sense and content*. Oxford: Clarendon Press.
- Ross, H., & Plug, C. (2002). *The mystery of the moon illusion*. Oxford: Oxford University Press.
- Siewert, C. (1998). *The significance of consciousness*. Princeton: Princeton University Press.
- Stalnaker, R. (1996). On a defense of the hegemony of representation. In E. Villanueva (Ed.), *Philosophical issues, 7: Perception* (pp. 101–108). Atascadero, CA: Ridgeview.
- Tye, M. (1991). *The imagery debate*. Cambridge, MA: MIT Press.
- Tye, M. (1992). Visual qualia and visual content. In T. Crane (Ed.), *The contents of experience* (pp. 158–176). Cambridge: Cambridge University Press.
- Tye, M. (1995). *Ten problems of consciousness*. Cambridge, MA: MIT Press.
- Tye, M. (1996). Perceptual experience is a many-layered thing. In E. Villanueva (Ed.), *Philosophical issues, 7: Perception* (pp. 117–126). Atascadero, CA: Ridgeview.
- Tye, M. (2000). *Consciousness, color, and content*. Cambridge, MA: MIT Press.
- Tye, M. (2002). Visual qualia and visual content revisited. In D. Chalmers (Ed.), *Philosophy of mind: Classical and contemporary readings* (pp. 447–456). New York: Oxford University Press.
- Tye, M. (2007). Intentionalism and the argument from no common content. In J. Hawthorne (Ed.), *Philosophical perspectives, 21: Philosophy of mind* (pp. 589–613). Malden, MA: Blackwell.