

THE SPATIAL CONTENT OF EXPERIENCE

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i. Introduction

To what extent is the external world the way that it appears to us in perceptual experience? This perennial question in philosophy is no doubt ambiguous in many ways. For example, it might be taken as equivalent to the question of whether or not the external world is the way that it appears *to be*? This is a question about the epistemology of perception: Are our perceptual experiences by and large veridical representations of the external world?

Alternatively, the question might be taken as asking whether or not the external world is like its ways of appearing to us, where the expression “ways of appearing” is intended to pick out aspects of our perceptual experiences themselves. This is a metaphysical version of the question of the relationship between appearance and reality: What is the relationship between the phenomenal features that characterize perceptual experience, on the one hand, and the mind-independent features of the external objects of perception, on the other?

There are some philosophers who might resist distinguishing between these two questions. For them, “ways of appearing” in the phenomenal sense just are the ways that things appear to be (let’s call the latter the “intentional sense” of “ways of appearing”).¹ That is, the phenomenal character of an experience is nothing over and above its representational content. Phenomenal properties are represented properties—the properties that an experience attributes to the external objects of perception.

The question of whether or not phenomenal properties can be identified with the represented properties of an experience mirrors traditional questions in the philosophy of perception. If they can be identified with each other, then in veridical perception we might be said to “directly grasp” features of the external world through perception. The properties that are present to the mind are the very same properties that belong to the external objects of perception. Such a view affords

¹ For example, see Tye (1995, 2000) and Shoemaker (2001). Shoemaker (2006) calls this the “ways = properties” view.

what we might call “metaphysical direct realism”.² But if we must distinguish between the ways things appear in the phenomenal sense from the properties that our experiences attribute to external objects, then it would seem that only “sensational properties” or qualia, and not mind-independent external properties, are present to the mind.

One can of course take a different view on the matter depending on which aspects of perceptual experience are in question. Perhaps some phenomenal properties are identical to, or resemble, features of the external world, whereas others do not. Historically this has been a popular position, embodied in the distinction between primary and secondary qualities. In the case of visual experience, for example, it has been common to claim that although the phenomenal colors do not resemble any mind-independent features of external objects, the spatial aspects of experience (let’s call them “phenomenal spatial properties”) do in fact resemble, or are identical to, the spatial properties external to the subject.

Primary quality views of color have become increasingly popular in recent philosophy, but they remain controversial.³ Some of the challenges to such views have come from considering the possibility of inverted spectra, as well as cases of perceptual variation among species, among individuals, as well as within individuals (such as color constancy and color contrast effects).⁴ There has been comparatively little controversy in contemporary philosophy over whether the phenomenal spatial properties of experience are identical to external spatial properties.⁵

Metaphysical direct realism about the spatial features of experience seems to be firmly entrenched in our ordinary conception of the material world and our perception of it. When we imagine what the world is like outside our experience, most of us tend to imagine a world of physical objects taking up space largely in a manner that is qualitatively like the corresponding features of our visual experience of the sizes, shapes, and locations of those objects. Though it is perhaps not easy, it seems to be much *easier* to conceive of material objects as lacking the phenomenal color properties that we experience than to imagine that they lack the phenomenal spatial properties. Perhaps reflecting this, the philosophical literature on perceptual qualities has tended to view the status of the color aspects of experience as problematic in a way that the spatial aspects of experience are not.

² This is to be distinguished from some of the more epistemological conceptions of direct realism. See my [Author’s work].

³ For advocates, see Byrne and Hilbert (1997) and Tye (2000).

⁴ See Hardin (1988) for a discussion of all of these.

⁵ Though Peacocke (1983) is a notable exception.

In the present essay, I argue that such an attitude is mistaken, and that metaphysical direct realism about the spatial features of experience is questionable in ways that mirror problems for metaphysical direct realism about the phenomenal color properties. I do so by arguing that with regard to visual experiences of space, the phenomenal ways of appearing cannot be identified with the spatial properties represented by those experiences. I examine the nature of the spatial content of experience—what and how the spatial aspects of visual experience represent. I argue for a Fregean, rather than a Russellian, theory of the phenomenal content of spatial experiences. On this view, unlike a Russellian view, two phenomenally identical spatial experiences can attribute different spatial properties to their respective objects. What phenomenally identical experiences have in common does not consist in *what* they represent, but in *how* they represent. This feature of Fregeanism undermines even the restricted thesis of metaphysical direct realism for our visual experiences of space. Phenomenal spatial properties cannot be identified with the represented spatial properties of external objects.

2. Phenomenal Content

Visual experiences, in virtue of their phenomenal character, are accessible for accuracy.⁶ Consider what it is like to visually experience a blue circular object to the left of a green cubical object. In having an experience like this, the world outside my experience is presented to me as being some way. There are ways the world might be which are compatible with the experience, and other ways the world might be which are incompatible with the experience. Moreover, this intentional feature of visual experience seems to be shared by phenomenal duplicates. If two subjects have visual experiences that are phenomenally identical, there is an important sense in which the way their respective surroundings appear to them is the same.

This intentionality that is inherent to phenomenology I will call “phenomenal content”. Phenomenal content is content that supervenes on phenomenal character. Necessarily, if two experiences have the same phenomenal character then they have

⁶ For an excellent defense of this view, see Chapter 7 of Siewart (1998).

the same phenomenal content. This is the defining feature of phenomenal content, as I will use the phrase.⁷

Questions immediately arise as to the nature of phenomenal content. One question, which is the focus of the present paper, concerns what kind of content phenomenal content is. Most philosophers who have discussed phenomenal content adopt what I will call a *Russellian* theory of phenomenal content. According to Russellian theories, phenomenal content is purely extensional, involving relations to specific properties. According to what I will call *Fregean* theories of phenomenal content, phenomenal content involves modes of presentation of represented properties.

The distinction between Russellianism and Fregeanism about phenomenal content can be illustrated by considering parallel, and more familiar, views regarding thought contents. Consider the thought that would be expressed by saying “George Bush is a Texan.” It is plausible to think that this thought is composed of concepts, and in particular, a “George Bush” concept and the concept of being a Texan. A natural view regarding the semantic values of these concepts is that they simply consist of the properties or individuals that lie within the extensions of the concepts. The semantic value of the “George Bush” concept consists in a particular individual, George Bush. The semantic value of the “Texan” concept consists in a particular property, the property of being a Texan.

According to Fregean theories of thought contents, the semantic values of thoughts and the concepts from which they are composed are not purely extensional. In addition to the property or individual referred to by a concept, there is an additional sense or mode of presentation. Frege introduced this second dimension of content in order to accommodate facts about cognitive significance. For instance, a person might rationally believe that Venus is a planet without believing that Hesperus is a planet. This is accounted for within a Fregean framework by the idea that “Venus” and “Hesperus” have, in addition to their shared reference, distinct modes of presentation.

Russellian theories of phenomenal content are committed to the following “extensionalist thesis”:

For any experience with phenomenal character r , there is some property p_r such that necessarily if an experience has phenomenal character r then it attributes p_r

⁷ There may be other legitimate notions of intentionality that apply to visual experiences. But I will only be concerned here with phenomenal content.

Perhaps the majority of theories of phenomenal content, including many that are otherwise quite dissimilar in other respects, are varieties of Russellianism and are thus committed to the extensionalist thesis. Such views include most representationalist theories of consciousness, projectivist theories, primitivist theories, and even some versions of classical sense-datum theory. They vary with regard to their positions on the following matters: 1) What sorts of properties p_r experiences represent; 2) Whether perceptual experiences are ever veridical; and 3) The relationship between the phenomenal character r of the experience and the represented properties p_r .

For instance, most reductive representationalists hold views according to which perceptual experiences represent non-dispositional physical properties, that external objects in fact possess those properties, and that the phenomenal character of an experience consists in the representing of those properties (Dretske 1995, Harman 1990, Tye 1995, 2000). Shoemaker (1994, 2001) adopts a similar Russellian theory of the phenomenal content of color experience, except that the properties represented are dispositions to cause experiences of certain sorts in perceivers. Projectivist theories of perception are also often articulated in a way that makes them a version of Russellianism (Boghossian and Velleman 1989). According to projectivism, the mental properties that ground the phenomenal character of an experience are represented (falsely) as belonging to the external objects of perception. A different view, sometimes called “primitivism”, holds that (at least with regard to color) experiences attribute primitive intrinsic properties to external objects, and that the phenomenal character of an experience is determined by being appropriately related to these properties (Campbell 1993, Maund 1995, McGinn 1997). Certain forms of classical sense-datum theory might also qualify as Russellian. For instance, one might hold that an experience necessarily represents objects as having the property of resembling or of bearing some other relation to the sense data that determine the experience’s phenomenal character.

What all these views have in common is their commitment to the extensionalist thesis. Each claims that there is a one-to-one correspondence between phenomenal character and represented properties, such that any two experiences that are phenomenally the same will necessarily represent the very same properties. All Russellian theories of phenomenal content are committed to that thesis. But there are also possible Fregean theories that entail the thesis. For instance, a Fregean might hold that sameness of mode of presentation entails sameness of reference. One version of such a theory would be a neo-Fregean view

(McDowell 1977, Evans 1982) according to which phenomenal content is an object-involving mode of presentation of the represented object. One might likewise take such a view about the properties represented by an experience, such that the modes of presentation of those properties are individuated by their referents. My objections to Russellian theories of phenomenal content will center on their commitment to the extensionalist thesis, such that those criticisms will also apply to any non-Russellian theory that is also committed to that thesis. Later I will present a Fregean theory of spatial phenomenal content that is not committed to the extensionalist thesis.

The distinction between Russellian and Fregean theories of phenomenal content mirrors in some respects the distinction between externalist and “dual component” theories of content. Motivated in part by the types of Twin Earth cases described by Putnam (1975) and Burge (1979), externalists about thought content hold that the content of a thought does not supervene narrowly on “what’s in the head”, but instead is at least partly determined by external relations between the subject and his environment. Burge (1986) and Davies (1991, 1993) extend the externalist thesis to include perceptual content. Dual component theorists of thought content typically accept the externalist arguments for a kind of thought content that is externalistically determined. But they insist that in addition to this “wide content”, thoughts also have “narrow content” that is individualistically determined (White 1982, Block 1986, Fodor 1987, Loar 1988, Chalmers 2002b).⁸ A similar view might be offered with regard to perceptual content.

It is natural to think of narrow content as perhaps being similar to a Fregean sense or mode of presentation. And any Fregean theory of phenomenal content is a “dual component theory”, in the sense of positing two components of phenomenal content. The arguments to be put forth here are thus in the spirit of dual component theories of content. But the debate between Fregean and Russellian theories of phenomenal content is different from the debate concerning narrow versus wide perceptual content in two very significant respects. First, the discussions of spatial content by Burge and Davies were not explicitly concerned with *phenomenal* content. Indeed, Burge (1986) says of his narrow duplicates situated in different environments that their “physical states, discriminative abilities, and perhaps purely phenomenological (non-intentional) states remain the same between the two situations.” But if the perceptual content under consideration can vary among

⁸ Some advocates of narrow content, however, reject the externalist thought experiments outright (Crane 1991, Segal 2000).

phenomenal duplicates, then this content is not phenomenal content, and thus neither Russellian nor Fregean phenomenal content. Davies (1993, p. 234) and McGinn (1989, p. 66) appear sympathetic to the idea that, in McGinn's words, "two experiences that are indistinguishable for the subject should be awarded the same perceptual content." Davies' attraction to this idea, plus the intuition that phenomenal character supervenes narrowly on the subject, leads him to acknowledge that there may be a form of narrow perceptual content (p. 239). But this content that supervenes on phenomenal character, and thus would constitute a kind of phenomenal content, is not the notion of perceptual content that is the focus of his discussion. Interest in the notion of *phenomenal content* has increased greatly in more recent years, in large part due to the popularity of representationalist theories of consciousness.

Secondly, the question of externalism, which is the central issue raised by debates concerning narrow versus wide content, is largely orthogonal to the present question concerning whether spatial phenomenal content is Russellian or Fregean. The issue of externalism versus internalism (or of a mixed "dual-component" theory) about perceptual content concerns the supervenience base of that content. The question is whether or not there is a kind of content that is determined solely by the internal constitution of the subject. The present question regarding Russellian versus Fregean theories concerns what I have called "phenomenal content", which is by definition a kind of intentional content that supervenes on phenomenal character. Phenomenal content will be wide or narrow depending on whether phenomenal character is wide or narrow. But whether phenomenal content is itself wide or narrow, it could be either Russellian or Fregean.

As an indication of the independence of the Fregean/Russellian distinction versus the narrow/wide distinction, it is worth noting that one can hold the view that both phenomenal character and phenomenal content are narrow while also endorsing a Russellian theory of phenomenal content. This is easy to see by considering projectivist or sense-datum theories. These views are likely to hold that the phenomenal character of an experience locally supervenes on the internal states of the subject. It follows that the phenomenal content of an experience is a form of narrow content, as it also locally supervenes on the internal states of the subject. But this content is Russellian, consisting (in the case of projectivism) in the attribution of the phenomenal properties of the experience as belonging to the external objects of perception. A narrow, Russellian theory of phenomenal content is also suggested by Horgan and Tienson (2004). On their view, mental reference to a large range of

specific properties and relations are “phenomenally constituted”, such that one’s brain in a vat phenomenal duplicate necessarily represents the very same properties and relations.

In principle, one could also be a Fregean externalist about phenomenal content. The neo-Fregean position discussed above provides one example. This is not to deny that some combinations of views with regard to the two distinctions may be more plausible than others. But here I am simply arguing for a Fregean theory of spatial phenomenal content. Whether we ought to then adopt the view that such content is a form of narrow content or wide content would require further argumentation.

Let’s call a Russellian theory of phenomenal content “physical property Russellianism” if it accepts the following:

For any experience with phenomenal character r , there is some physical property p_r such that necessarily experiences with phenomenal character r attribute p_r .

The majority of Russellian theories of phenomenal content are versions of physical property Russellianism. For example, it is often held that color experiences represent colors, and that two phenomenally identical color experiences necessarily represent the same colors. Colors, in turn, are identified with some physical property, such as surface spectral reflectance properties.⁹ In discussing Russellian theories, I will generally have in mind physical property Russellianism.

One problem that has been raised for Russellian theories of phenomenal color content comes from the possibility of spectrum inversion.¹⁰ Two individuals are spectrum inverted with respect to each other if their color experiences are phenomenally inverted relative to one another. For instance, it might be that the color experience Jack has when viewing a red thing is phenomenally identical to the experience Jill has when looking at a green thing. It is conceivable that there could be two subjects who are spectrum inverted relative to each other.¹¹ In fact, it has

⁹ See for example Byrne and Hilbert (1997), Tye (2000).

¹⁰ This is a problem that Sydney Shoemaker has frequently discussed as a problem for what he calls “standard representationalism”—a version of Russellianism. Shoemaker’s own proposal is also a version of Russellianism, but on which the represented properties are taken to be relational properties between objects and perceivers. I discuss Shoemaker’s view, and raise problems for it, in my [Author’s article].

¹¹ Sometimes spectrum inversion is put forth as a challenge for functionalism or for physicalism. There it is claimed that functional or physical duplicates could be spectrum inverted. Here I need take no stand on that issue.

been argued that it is in fact *likely* that there are actual cases of behaviorally undetectable spectrum inversion (Nida-Rumelin 1996).

Suppose that Jack is looking at a strawberry and that Jill is looking at a lime. The strawberry and lime could be such that, due to their being spectrum inverted relative to each other, Jack and Jill are having phenomenally identical color experiences.¹² It seems also that neither Jack nor Jill need be misperceiving the color of the fruit. After all, the having of an experience with a certain phenomenal character in response to the strawberry or lime is not simply a product of the nature of the fruit. It is in large part of product of Jack and Jill's subjective constitutions: the way that their eyes work, the way that information received from the eye is processed in their brains, etc. There seems to be no grounds for saying that Jack's way of perceiving red things, or instead Jill's way, is the only correct way for red things to appear. This can be made more vivid by imagining that half the human population is like Jack, and the other half is like Jill. By what criterion can it be rightly said that one half of the population misperceives the colors of things?

The possibility of "spectrum inversion without illusion" poses an immediate problem for standard formulations of Russellianism. Jack and Jill have color experiences that are phenomenally the same, and their experiences are both veridical. But the external objects in their visual fields have different color properties. This entails that the shared phenomenal content of their color experiences cannot consist in the representation of color properties. And that is to say that Russellianism for phenomenal color content is false.

Byrne and Hilbert (1997) and Tye (2000) try to defend Russellianism by arguing that spectrum inversion without illusion is not possible. Sydney Shoemaker has given this style of argument as support for a non-standard form of Russellianism, according to which color experiences represent "appearance properties"—relations between objects and perceivers.¹³ But among those who would accept that Russellianism about the phenomenal content of color experience is mistaken, many would not be inclined to accept a similar view about spatial experience. After all, colors are often taken as paradigmatic *subjective* or *secondary qualities*. Color experience does not acquaint us with mind-independent features of external objects.

¹² Their experiences will presumably differ in other respects, such as with respect to the shape and size of the fruit they are viewing. Here I am only concerned with the color content of their experiences. One might instead suppose Jack and Jill are looking at inflated balloons, one green and the other red, which are identical in shape and size.

¹³ I discuss and criticize that view in [Author's article].

Spatial experience, by contrast, is often thought of as acquainting us with *objective* or *primary qualities* of external objects. In what follows I will be arguing that Russellianism about the content of spatial experience is also mistaken, by a line of reasoning similar to that given in the case of color.

3. Doubled Earth

According to Russellian theories of spatial content, spatial experiences represent specific spatial properties and relations, such as egocentric distances, shapes, and sizes. More formally, Russellian theories of spatial content hold the following:

For any spatial experience with phenomenal character r , there is some property p_r such that necessarily any experience with phenomenal character r attributes p_r .

For instance, consider the experience of distance. There is a way something looks when it is straight ahead and ten meters away. And this experience differs in phenomenal character from the one had when looking at something twenty meters away. Let's call the distinctive phenomenal character of experiences had by normal human beings when looking at something 10 meters away r_{10m} . According to a Russellian theory of the phenomenal content of spatial experience, there is some physical spatial property that all experiences with phenomenal character r_{10m} attribute to the object of perception. For example, all experiences with phenomenal character r_{10m} might attribute the property of being roughly 10 meters ahead of the subject.¹⁴

Russellian theories of spatial phenomenal content require that phenomenal duplicates attribute the very same spatial properties and relations to objects in their environment. A counterexample to such a view can be found by considering a kind of spatial Twin Earth scenario. A spatial Twin Earth scenario is one in which two subjects are phenomenal duplicates—they have experiences that are identical in phenomenal character. But the subjects are on worlds that differ spatially in important ways.¹⁵

¹⁴ Here I use the phrase “roughly 10 meters” to pick out some objective distance. The experience of distance itself is likely, as Peacocke (1992) has discussed, “unit-free”.

¹⁵ Burge (1986), Davies (1991, 1993), Hurley (1998), and McGinn (1989) have also discussed spatial Twin Earth thought experiments. As discussed above, Burge and

Consider two individuals, Oscar and Big Oscar. Oscar is a normal perceiver residing on Earth. Big Oscar lives on Doubled Earth, a distant planet in the same universe as Earth. Doubled Earth is just like Earth, except everything on Doubled Earth is stretched out to be twice as big as its counterpart on Earth.¹⁶ The “meter stick” on Doubled Earth is two meters long. A cube of volume v on Earth is of volume $8v$ on Doubled Earth. Oscar is six feet tall; Big Oscar is 12 feet tall.

Big Oscar is Oscar’s *phenomenal twin*. Big Oscar’s conscious life is precisely the same as Oscar’s. When Oscar looks at a sunset on Earth and has a visual experience with a certain phenomenal character, Big Oscar is also looking at a sunset, but on Doubled Earth, and his visual experience is phenomenally just like Oscar’s. When Oscar looks at the Eiffel Tower, he has an experience of a certain shape, color, and size. When Big Oscar looks at Big Eiffel Tower (the Eiffel Tower’s counterpart on Doubled Earth), Big Oscar has an experience that is phenomenally just like Oscar’s. Big Oscar’s experience, however, is caused by something twice as tall as Oscar’s.

That Big Oscar *could* be Oscar’s phenomenal twin is certainly conceivable. It is all the more plausible considering that Doubled Earth and Big Oscar can be developed in such a way that Big Oscar is a functional duplicate of Oscar. There are various ways that one might imagine Doubled Earth. Doubled Earth and all its inhabitants are twice as big as Earth. We might imagine this to be true down to the molecular level, with perhaps a slightly different underlying physics on Doubled Earth. Since Doubled Earth is a doubled duplicate of Earth over time (and not just at an instant), there may be other differences between Earth and Doubled Earth as well. Consider the temporal dynamics of neural activity in Oscar and Big Oscar’s brains. In order for the timing of brain activity to be duplicated, there may have to be differences in such things as the speed at which electrical activity passes down the axons of the neurons. Big Oscar’s axons, after all, are twice as long as their counterparts in Oscar. But given that we can stipulate compensating physical differences, if need be, between Doubled Earth and Earth, there does not seem to be any barrier to the idea that functional relations are preserved between Earth and

Davies were primarily concerned with individualist versus externalist theories of perceptual content. They also were not explicitly concerned with *phenomenal* content. Hurley’s primary concern is with whether internal states can be physically or functionally duplicated while altering the external environment.

¹⁶ As mentioned, Doubled Earth is in *our* universe. We need not imagine that sense can be made of another possible universe that is twice the size of this one.

Doubled Earth. It is hard to imagine that anything that is physically relevant in the production or realization of a conscious experience with a certain phenomenal character in Oscar is absent or different in Big Oscar.

Oscar is a normal perceiver and resides on Earth with us. By and large, he has veridical perceptions of size, shape, and location. What about Big Oscar? Suppose that Oscar sees a tree that is ten meters away, and that it looks to him the way that things ten meters away usually look to him. Big Oscar is looking at something twenty meters away, but he is having a visual experience that it just like the one Oscar is having while seeing something only ten meters away. Is Big Oscar a misperceiver of distance?

Intuitively, Big Oscar is not a systematic misperceiver of distances. There seems to be nothing about Oscar and his environment that would entitle us to say that Oscar is a veridical perceiver of distance whereas Big Oscar is a systematic misperceiver of distance. We might be tempted to privilege Oscar's experiences over Big Oscar's, given that I have described Oscar as a normal perceiver on Earth. But this would only be a form of chauvinism. There look to be no objective grounds for saying that Earthlings, rather than Doubled Earthlings, see size and distance properties *as they really are*.

It could turn out, in fact, that Earth is a peculiar place. It is epistemically possible that future findings in the physical sciences will show that things on Earth are compacted relative to most other places in our universe, or relative to the size they would be if they were some distance from Earth. Doubled Earth, it might turn out, is not unusual in this respect. A discovery that Earth is spatially strange in this way would not lead us to conclude that *we* have been misperceiving size and distance. Earth and Doubled Earth can be thought of as two hypotheses about the spatial characteristics of the actual planet we inhabit. Earth and Doubled Earth are intrinsically different with regard to size and distances. In having an experience as of something "ten meters away" one might ask oneself whether if either Earth or Doubled Earth is the actual world, is one's experience veridical. Now it is trivial in a certain sense that the experience as of something "ten meters away" is made true by the thing actually being ten meters away. But this should not mislead us into thinking that if we are on Doubled Earth, objects that cause such experiences are really twenty meters away, and thus that our experiences are not veridical. For this would be to consider Doubled Earth as a counterfactual, rather than an actual, scenario. But if we take Doubled Earth as an epistemic possibility about how the actual world is, then the expression "ten meters away" denotes the physical quantity

that we might have earlier referred to by “twenty meters”. And it seems to me that, if I have always been on Doubled Earth, then my spatial experiences are nonetheless by and large veridical. It is compatible with my experiences of the sort imagined that they be typically caused either by the property of, using my actual language, being ten meters away or twenty meters away. Our judgments of the veridicality of our experiences of distance are not hostage to the confirmation that we live on Earth rather than Doubled Earth. We ought to conclude that we and our Doubled Earth twins are both veridical perceivers of space—but that our spatial experiences represent different spatial properties and relations.

Russellian theories of spatial phenomenal content hold that such content is exhausted by facts about what properties are attributed to the objects of perception. Standardly, a Russellian theory of the experience of distance will hold that such experiences represent objective, egocentrically specified distances from the perceiver. Any two experiences of distance that are phenomenally the same will attribute to their respective objects the very same egocentrically specified distance. The case of Doubled Earth provides a counterexample. Oscar and Big Oscar are phenomenal duplicates. Oscar and Big Oscar are both having veridical experiences of the distance of the tree in their respective fields of view. But the tree Oscar is looking at is ten meters away, whereas the tree Big Oscar is looking at is twenty meters away. For Oscar and Big Oscar both to be veridically representing the distances of the trees in their respective environments, their experiences must attribute *different* distances to the trees. And this entails that Russellianism for the phenomenal content of the experience of distance is false.

4. Objections and Replies to the Doubled Earth Case

One might object that the needed intuitions in the Doubled Earth case are incoherent, or at least deserving of suspicion. What grip do we have, it might be asked, on the idea that Oscar and Big Oscar are having phenomenally identical experiences, once we have also accepted that their experiences represent the world differently? Lying behind this worry is a quite plausible idea about the relationship between the phenomenal character of an experience and its intentional content. It is often claimed, especially by representationalists, that the phenomenal character of

a perceptual experience is a matter of the way things appear to the subject.¹⁷ Going with this intuition, it would seem that if Oscar and Big Oscar are phenomenal duplicates, then the way the world appears to them would be the same. Does this not entail that their experiences represent the very same properties? Or as McGinn (1989) puts it, perceptual content is a kind of “phenomenological content”, such that any two phenomenally identical experiences would share perceptual content.¹⁸

Properly interpreted, these intuitions about the relationship between phenomenal character and intentional content do not threaten the Doubled Earth argument. Rather, they are precisely the sorts of intuitions that motivate the idea that there is such a thing as what I have called “phenomenal content”—content that is shared necessarily by phenomenal duplicates. In imagining that Oscar and Big Oscar are having phenomenally identical experiences but that their experiences do not attribute the same properties to their environments, we need not presume that they do not share perceptual content. We just have to conclude that any shared content does not consist in the attribution of specific properties to their respective environments. That is, it only follows that the “phenomenological content” that they share is not Russellian. Similarly, we need not deny that the way the world appears to Oscar is in some sense the same as the way the world appears to Big Oscar. It is just that these “ways of appearing” must not be identical to specific properties that external objects appear to have. Ways of appearing, it will be argued, are phenomenal modes of presentation of represented properties.¹⁹

A different sort of objection might come from philosophers who have adopted views according to which it is impossible for Big Oscar to have an experience that is phenomenally just like Oscar’s, given the differences in their immediate environment. Phenomenal externalists hold that phenomenal character is not constituted entirely by events or states internal to the subject (such as what is “in the head”), but instead depends constitutively on facts about the subject’s environment.²⁰ The Doubled Earth argument seems to presuppose an internalist view of phenomenal character.

¹⁷ This way of putting things can be found explicitly in Shoemaker (2006).

¹⁸ See also Davies (1993).

¹⁹ See Shoemaker (2006) for discussion of this issue, and of what he calls the “ways = properties” view. See my [Author’s paper] for more on the distinction between “the way things appear” and “the way things appear to be”.

²⁰ To say that phenomenal character “depends constitutively” on external facts is to distinguish phenomenal externalism from the uncontroversial view that phenomenal character depends in a weaker way, such as causally, on external matters. For a defense of phenomenal externalism, see Lycan (2001).

Phenomenal externalism is a very controversial view. And arguably, our intuitions about veridicality in Twin Earth cases such as the ones discussed here should be a central part of our evidence for evaluating that thesis. If so, then phenomenal externalism is certainly not an independent grounds for objecting to the Doubled Earth thought experiment. But leaving open the possibility of phenomenal externalism, the present argument concerning phenomenal content cannot be evaded simply by endorsing phenomenal externalism. One reason is that a phenomenal externalist might want to claim that phenomenal externalism is only contingently true. This is enough to allow for the metaphysical possibility of phenomenal duplicates such as Oscar and Big Oscar, situated in spatially different environments. And this is all that one needs to set up the thought experiment.

But even this much is not needed for the argument. Suppose that the phenomenal externalist insists that the view is necessarily true, such that Oscar and Big Oscar being phenomenal twins is a metaphysical impossibility. The argument can still go through. The thought experiment is an instrument for helping us determine the semantic features of actual spatial experiences, by considering whether they would be made true by various scenarios. It can do this job whether or not the experiences themselves could exist in those scenarios. A close analogy is useful here. Suppose Jack says, "I exist." To figure out what possibilities are left open by the content of what Jack has said, one does not look only at the worlds in which Jack exists and utters that very sentence. It is compatible with the content of what Jack has said that Jack exists but is a mute. The semantic item being evaluated need not exist at a world-state in order for that world-state to be compatible with the content of the semantic item.

Given the above, if one is committed to the metaphysical impossibility of Twin Earth scenarios like the one involving Oscar and Big Oscar, one still must answer to the thought experiment. Take Oscar to be the only metaphysically possible subject. Earth and Doubled Earth can be considered as two distinct epistemic possibilities about the way the actual world might be. And on either scenario, it seems that Oscar's experience is veridical. The content of his experience does not rule either scenario out, just as the content of Jack's utterance does not rule out the scenario in which he exists but is mute.

One might be tempted to make a move in response to this argument that parallels moves made in defense of externalism about thought content. There is an argument for narrow content that might proceed as follows. How things seem to me is consistent with my being on Earth or on Twin Earth. That I am on Twin Earth

and that I am on Earth both remain an epistemic possibility. So the contents of my thoughts do not rule either of these scenarios out. It follows that, contra externalist theories of thought content, my “water” thoughts are compatible with either my being on Earth or on Twin Earth. In response, the externalist may contend that it merely seems to me as though my thought contents are compatible with my being on Twin Earth (assuming that I am in fact on Earth). That I cannot distinguish between the thought contents that I have on Earth from the thought contents that I would have if on Twin Earth does not entail that those thought contents would in fact be exactly the same.

Adapting this point to the issue at hand, one might object to the Doubled Earth argument by claiming that the fact that I cannot rule out, on the basis of my spatial experiences, that I am on Doubled Earth rather than Earth, does not entail that the phenomenal content of my experience is compatible with either scenario. It entails only that I am unable to distinguish between the phenomenal content of my experience (here on Earth) and the phenomenal content of the experience I would have if I were on Doubled Earth.

One response to this objection would be to simply deny that this defense of externalism is adequate even in the case of thought contents. Such positions lead to well-known difficulties concerning privileged access to the content of one’s own mental states. And it may be held that, even if there is a sort of intentional content for which we lack privileged access, we need another notion of intentional content that can be used in an account of the cognitive or rational role of thought (Chalmers 2002). Unless no sense can be made of a form of intentional content for which we have a more privileged sort of epistemic access, it is hard to see what reason there would be for not, at a minimum, being pluralists with regard to thought contents. The same point would presumably apply to phenomenal content.

I sympathize with the above, but it takes us into another debate for which I do not have the space here to fully enter. What is significant for our concern, however, is that the idea that phenomenal content is a kind of epistemic content—content that is epistemically available to the subject of the experience independent of additional empirical information—is on more solid footing than the analogous view about the contents of thought. As noted earlier, perceptual content is plausibly a matter of “how things seem” to the subject. It is less plausible of perceptual content that there could be a representational difference between two perceptual contents without a corresponding difference in “how things seem” to the subject.

The notion of phenomenal content just is the kind of content meant to capture “how things seem to me”.

Indeed, *phenomenal content* was defined as content that necessarily supervenes on phenomenal character. So the objection cannot be that the phenomenal content of my experience would be different depending on whether or not I am on Earth versus Doubled Earth, despite my having an experience in both scenarios that is phenomenally the same. Any claim that phenomenally identical experiences can fail to have the same intentional content is not a defense of a Russellian theory of phenomenal content—it is a denial of the very existence of phenomenal content. Here we are assuming that there is such a thing as phenomenal content, and exploring what sort of content it must be.

As noted above, it is plausible to suppose that the spatial content of visual experience is “unit-free”. As Peacocke (1992) observes, when one sees an object as having a certain width, one does not visually represent it as having a particular width in inches as opposed to centimeters, or in any other metric.²¹ But, it may be argued, if visual experiences do not represent metrically specified spatial properties, even approximately or vaguely (as in “roughly ten meters away”), then it is not clear that the above argument identifies a difference in the properties that Oscar and Big Oscar attribute to their respective environments.²² “Number of meters” properties do not enter into the content of either subject’s experiences.

In reply, the use of expressions involving metrical terms to characterize the intentional content of an experience should not be understood as attributing that metric to the experience itself. It is difficult to describe spatial content without *using* a metric. But in accepting Peacocke’s suggestion that spatial content is unit-free, we should take the use of a measurement system in characterizing spatial content to merely be a way of *describing* the truth conditions for experiences. We would do equal justice to the relevant spatial content if we were to describe that content in terms that use a different metrical system, such as in inches or in terms of the percentage of the height of the Eiffel Tower.

There is a *metric-independent* spatial property that makes it the case that an object satisfies the description of “being ten meters long”. This very same property—a particular way of filling space—is also what makes it the case that an

²¹ But does the visual system, perhaps, have its own proprietary metric? This strikes me as an empirical question. For the sake of the present objection I will assume that spatial content is unit-free in any sense that is relevant to phenomenal content.

²² Thanks to an anonymous referee for raising this objection.

object satisfies the description of “being 32.8 feet long”. On an abundant conception of properties, perhaps we should allow that in addition to these metric-independent spatial properties, there are properties like that of being ten meters long, such that this property is a different one from the property of being 32.8 feet long. But if the spatial contents of experiences are unit-free, then experiences represent the *metric-independent* spatial properties and not the metrical spatial properties.²³ The objects in Big Oscar’s environment are twice as big, regardless of the metric one might use to describe ways of filling space, as the objects in Oscar’s environment. This is all that is needed for the Doubled Earth argument to go through, along with the hypothesis that both subjects are having phenomenally identical and veridical spatial experiences.

An anonymous referee suggests that rather than attributing a metrical property, a spatial experience represents “a particular region of space”, and that such content can be characterized as something looking “this far from here” or as “just there”. I would agree that, given the unit-free and non-conceptual character of spatial content, demonstrative expressions such as “this far from here” might be one of our best ways to linguistically refer to the spatial properties that experiences represent. And at some level, it should also be agreed that experiences represent particular regions of space. But this *particularity* should not be considered part of *phenomenal* content. Phenomenal content is content that phenomenal duplicates share, and so is content that Oscar and Big Oscar share despite (veridically) experiencing distinct regions of space. Likewise, if (as on the Russellian view) particular spatial properties enter into phenomenal content, these will be general properties and not particular property instances. This point is illustrated again by considering Oscar and Big Oscar and their shared phenomenal content. But we can also simply appeal to the fact that, as with color and color experience, two distinct objects can (veridically) look the same with regard to their spatial properties. The phenomenal content that captures this shared appearance thus cannot involve particular property instances.

This point applies equally to egocentrically-specified spatial features, such as “being this far from here”. For example, imagine touring a new housing development that contains multiple homes with identical floorplans. One might stand in the same respective location of two distinct homes, face in the same relative direction, and

²³ These need not be maximally determinate spatial properties, but rather determinables corresponding to the limited resolving power of the perceiver’s visual system.

have two phenomenally identical spatial experiences. The *phenomenal* content that the two experiences share cannot involve the particular regions of space or particular property exemplifications that are distinct in the two experiences.²⁴ The most that the two experiences could share, on a plausible Russellian view, are the general (metric-independent) spatial properties that are in common between the two scenarios.

This leads us to a final Russellian strategy for handling the Doubled Earth thought experiment. Perhaps the best response on behalf of Russellianism is to find some property that does not vary between Earth and Doubled Earth that is a plausible candidate for being what spatial experiences represent. It might then be claimed that Oscar and Big Oscar both veridically represent these properties. Objects in the two environments differ with respect to objective size and distance. But one feature that is invariant between Earth and Doubled Earth is *relative* size and distance. The Russellian might hold that the phenomenal content of spatial experiences involve the representation of the relative sizes and distances of things.

An immediate question arises for such a view: relative to what? One proposal clearly will not do. Spatial content might be thought of as the representation of objects as having various sizes and distances relative to other objects in the visual field. The problem with this suggestion is that *those* relations can be shared by experiences that clearly attribute different spatial properties. For example, consider two visual experiences, both of which are of two objects. In both, one object is twice as big as the other. One experience is the seeing of a small and a large coin. The other experience is of a small and a large elephant. The small coin has the same relative size—relative to the large coin, as does the small elephant relative to the large elephant. But clearly the coin is not represented by the experience as being the same size as the elephant. Relative sizes, understood in this way, cannot be what size experiences represent.

One could build-in relations to objects in the visual field across time.²⁵ This might address the above worry about coins being represented as being the same size as elephants. Taking into account all of the experiences had by an individual over time, an experience of a coin will have a much smaller relative size than that of an elephant. But this proposal has some very counter-intuitive consequences.

²⁴ Here I assume that the proposal takes the content to consist in the particular property referred to by the expression “this far from here”, and not to be an indexical content. For discussion of the latter view, see below.

²⁵ A suggestion made by [Acknowledgement suppressed].

Assuming, as seems sensible, that size experiences represent sizes relative only to previously experienced objects, it makes it very difficult for phenomenally identical size experiences had at different times to have the same content. New visual experiences will change the relation, and if those experiences involve unusually large or unusually small objects, such changes could be quite significant. It is true that a person, after visiting New York City for the first time, might return to his modest-sized city and remark that the buildings downtown look smaller than they did before. But such statements strike me as figures of speech that report facts about how what we take to be a large building can change based on life experiences. That is, it reflects changes in belief or conceptual contents, not literal changes in the spatial content of visual experience.

The relational view of size and distance representation seems to need an “anchor point” for the represented relations. It isn’t clear what such an anchor point could be. The best candidate I can think of for size representation would be one’s own body. Perhaps in experiencing something as having a certain size, one represents it as having a size relative to the size of one’s own body. The body thus might serve as a kind of metric for size.

Suppose that we can find a plausible anchor point for size or distance. The real problem for such a view is that if Oscar and Big Oscar are both veridical perceivers of size and distance, then their spatial contents cannot involve the very same anchor points. For instance, suppose that Oscar’s size experience represents something as being twice the size of his foot. His foot, let’s suppose, is a foot long. Big Oscar has a phenomenally identical experience, and thus one with the same phenomenal content. But the object that Big Oscar is viewing is not twice the size of Oscar’s foot. It is four times the size of Oscar’s foot! What it is twice the size of is *Big Oscar’s* foot (which is two feet long). This makes obvious the fact that Oscar’s foot is not an appropriate anchor point for Big Oscar’s spatial content.

Rather, if there are anchor points for the representation of relative size, they must be relative to the perceiver. That is, the phenomenal spatial content that Oscar and Big Oscar share must not invoke *particular* anchor points, but rather must include something that varies between Oscar and Big Oscar. It follows from this that Russellian theories of size and distance content are mistaken. Those views hold that for any two phenomenally identical experiences of size or distance, there is some particular property that both experiences represent. But the content that Oscar and Big Oscar share does not consist in the representation of any particular property. Oscar’s experience represents the object as being twice as large as *Oscar’s* foot,

whereas Big Oscar represents the object in his view as being twice as large as *Big Oscar's* foot. These are different properties.

Spatial phenomenal content is thus a form of indexical content. And notice that the indexicality needed for spatial phenomenal content is not merely the sort of indexicality that would come from the recognition that visual experiences of space have *egocentric* rather than *allocentric* content. It is not just that spatial experiences represent spatial properties from a perspective, as in “five meters from here”. For as we saw with Oscar and Big Oscar, even egocentric distances can vary between phenomenally identical subjects. An experience had by Oscar that represented something as being five meters from him would, had by Big Oscar, represent something as being 10 meters from *him*.

The intentional content that Oscar and Big Oscar's experiences seem to have in common is something like an indexical function that, given different perceivers, can pick out different properties. The resulting view is a Fregean rather than Russellian theory of phenomenal content, since phenomenal content is not purely extensional.²⁶ What phenomenally identical experiences have in common is not what properties they represent, but how they represent.

Someone might reply that making spatial phenomenal content indexical does not necessarily require abandoning a Russellian view. Certainly there are promising theories of indexicality according to which the content of an indexical is purely extensional. However, the present objection against what I am here calling a Russellian theory of phenomenal content, and against any view that accepts the extensionalist thesis more generally, is that the content that phenomenal duplicates share (phenomenal content) is not a purely extensional content but is instead akin to the semantic feature that two uses of the word “here” share. John's use of “here”, while in Argentina, does not pick out the same location as Mary's use of “here” while in Thailand. If there is something semantic in common between their utterances of “It is raining here”, it must consist in something other than the singular propositions expressed by their utterances. Likewise, if there is something semantic in common between the spatial experiences had by Oscar and Big Oscar (phenomenal content), it must consist in something other than the purely extensional propositional content of their experiences.

²⁶ In my [Author's paper], I argue that a similar problem arises for Shoemaker's (1994, 2001) Russellian theory of phenomenal color content in its attempt to accommodate the possibility of inverted spectra without illusion.

It is helpful in this context to distinguish two sorts of broadly Russellian approaches to indexicality. On some Russellian theories of indexical content, such as that of Burge (1974), Weinstein (1974), Lewis (1980), and Evans (1981), there is no genuinely semantic feature in common between uses of an indexical term in relevantly different contexts. This sort of view is of no help as a model for the indexicality of phenomenal content in the present context, since we are assuming that Oscar and Big Oscar are having experiences with the same phenomenal content despite being situated in radically different environments. Other Russellian approaches to indexicality, such as Kaplan's (1989), introduce an additional semantic element (Kaplan calls it "character") besides content that both uses of "here" would share. This sort of view *does* provide a useful model for the indexicality of phenomenal content. We might say of Oscar and Big Oscar that their experiences differ in Kaplanian content but share something like a Kaplanian character. But phenomenal content—content that is shared by phenomenal duplicates—will not be a purely extensional content and thus will not qualify as "Russellian" in the present sense.

The indexical aspect of phenomenal spatial content thus shows that such content cannot be identified with a purely extensional sort of content but instead must be identified with a semantic feature that in different contexts can pick out different properties. Views that identify phenomenal content with something like an intension or function from contexts to properties, rather than with extensional content, are here considered broadly Fregean theories of phenomenal content.²⁷ That we must adopt such a view is significant because it threatens the idea that the spatial aspects of visual experience mirror external spatial properties, or provide us with a direct grasp of the spatial features of the external objects of perception. There is no specific property that any two phenomenally identical spatial experiences must necessarily pick out.

A "quasi-Berkeleyian" account of the visual perception of space in terms of touch and proprioception might seem to provide an alternative Russellian theory that need not appeal to indexicality. For example, a visual experience of distance had

²⁷ Similarly, theories of linguistic meaning or thought contents that, unlike Kaplan's own view, associate something like a Kaplanian character with most terms or concepts, including proper names, as part of the semantics and not merely "metasemantics" (see Kaplan 1989, Stalnaker 2001) can be thought of as broadly Fregean theories (Chalmers 2002). The dual component theories of thought content presented by White (1982) and Fodor (1987) can also be seen as applications of the character/content distinction to thought contents more generally.

by both Oscar and Big Oscar might represent an object as being “a five seconds walk away”. Despite the fact that the object in Big Oscar’s environment is twice as far away as the one in Oscar’s environment, we can suppose that it would take each of them roughly five seconds to walk to their respective objects. But there are at least two ways we might understand the content of their experiences as described above, neither of which appears to be satisfactory.

First, we might understand the representation as making reference to the actual activity of walking, such as the muscular activity and motions of the body through space. But these are quite different movements and activities for Oscar than for Big Oscar. And if we were to construe those activities more abstractly in terms of what they have in common, we would make misperception far too difficult.²⁸ For example, suppose that Oscar sees a tree 40 meters away. Due to a malfunction in his visual system, he has an experience that is like the kind of experience he normally has when viewing something 20 meters away. This clearly ought to be considered a misperception of the distance of the tree. But under the present suggestion, it would be considered a veridical experience. For this is precisely the sort of experience Big Oscar has when veridically viewing a tree that is 40 meters away, and so the relevant (non-indexical) content of the experience is satisfied under those circumstances.

A second version of the quasi-Berkeleian account might think of visual spatial content as making reference not to the actual activity of walking, but instead to the muscular and tactile sensations associated with that activity. This view, which is not unlike Poincaré’s (1958) view of space perception, seems promising as a way of providing a possible set of properties that might be had in common between objects viewed by both Oscar and Big Oscar, assuming that Oscar and Big Oscar’s senses of touch and proprioception are “Twin Earthed” in addition to their visual systems. But if these sensations are themselves not to be understood partly in terms of their spatial contents, the view is simply implausible as a view about the content of visual space perception. The resulting “spatial” content of visual experiences would not in fact pick out any property that we ordinarily think of as genuinely spatial (see also Evans 1985, ch. 13). If instead tactile and proprioceptive sensations are thought to be inherently spatial, then this view has simply relocated the challenge from visual

²⁸ The following problem is likely to generalize to any Russellian account of spatial phenomenal content that attempts to render Oscar and Big Oscar’s experiences as both being veridical by identifying the represented properties with less determinate or higher-order properties that objects in both environments have in common.

spatial content to tactile or proprioceptive spatial content. And it seems that a Doubled Earth scenario involving the content of these other sense modalities can be posed with equal force against Russellianism for their phenomenal spatial content.

5. Spatial Content and the Qualitative Nature of Physical Space

The Doubled Earth thought experiment shows that Russellianism about the experience of size is false. The thought experiment more generally applies to the experience of distance or length. The conclusion thus concerns the relationship between the nature of the experience of various spatial quantities and the spatial quantities as features of external physical objects. There is no one-to-one correspondence between a spatial experience with a particular phenomenal character and the attribution of a particular spatial quantity. But spatial experience is not *merely* quantitative. And spatial properties are also surely not merely quantitative. For example, we experience various spatial quantities, such as various lengths or volumes. And we also experience temporal quantities, such as durations of time. The difference between these two types of experiences is not, or at least not entirely, a quantitative difference. Spatial and temporal experiences differ *qualitatively*. Each has a distinctive, indeed radically different, qualitative character.

Is there a single way that external spatial properties and relations must be, qualitatively, in order for spatial experiences to be veridical? The Double Earth thought experiment does not address this question, since we assumed that Double Earth was just like Earth except for differences in spatial quantities, leaving the qualitative nature of space unchanged. To answer this new question, we can again consider cases of phenomenal duplicates situated in relevantly different environments. In this case, we must imagine phenomenal twins situated in worlds in which the properties corresponding to their spatial experiences are radically different in their qualitative or intrinsic natures. Must at most one of them be a veridical perceiver?

The imaginative feat required to answer this question is in one respect more difficult than in the quantitative inversion cases, but in another respect more straightforward. The difficulty arises from the central role that our experiences of space seem to play in our imagination and conception of the external world. Even more so than in the case of color, it is pre-theoretically natural to take a naïve realist stance toward space perception. When we try to imagine what the world outside

experience is like in itself, it is difficult to do so without imagining it as consisting of objects extended in a space that is qualitatively like space as we experience it.

But in another respect, imagining (or at least conceiving of) worlds in which external space is qualitatively different from how we normally think it is in the actual world is relatively easy. That is because contemporary science has forced us to adopt highly counter-intuitive conceptions of space, one's that do not conform easily to naïve realism about space perception. We experience space and time as thoroughly independent dimensions of reality, each with quite different qualitative natures. But relativity theory tells us that the dividing of spacetime into three dimensions of space and one dimension of time is relative to an observer and his or her state of motion. This presents a challenge to the idea that space and time are qualitatively in themselves like the way we experience them. Space as we experience it seems to be roughly Euclidean in nature. But Einstein's theory of general relativity makes use of Riemannian geometry to describe physical space. Quantum mechanics, and attempts at a theory of everything such as string theory, present even more radical pictures about the fundamental nature of the physical world and the nature of space. In the face of all these divergences from the intuitive conception of spatial properties that we borrow from our spatial experiences, it becomes quite unclear whether the spatial locations, distances, and shapes that are properly attributable to external physical objects bear any qualitative resemblance to the corresponding phenomenal features we can identify through introspection. It seems unlikely that physics will ultimately present a picture of the qualitative nature of physical space that closely resembles the spatial appearances in perception. This suggests that if you want to be Russellian about the content of spatial experience, it seems as though you will be forced into being an error theorist.

To avoid this conclusion, the Russellian might insist that the Russellian content of a spatial experience consists in the attribution of whatever external physical property—presumably the one that the physical sciences will ultimately discover—actually causes experiences of the given phenomenal type. Any phenomenally identical spatial experience that is not caused by that physical property is a misperception.

But given the qualitative dissimilarity between phenomenal spatial properties and the external physical properties that reliably cause them in us, the privileging of these *actual* properties that cause spatial experiences in us as the only ones that can be veridically represented by experiences with those phenomenal characters loses any motivation. We can again consider Twin Earth scenarios. Let's consider two distinct

possible space-time geometries, G_1 and G_2 . Consider also two distinct possible underlying qualitative natures of space-time, Q_1 and Q_2 . Given that the physical truth about space-time continues to be a matter of investigation, G_1 and G_2 and Q_1 and Q_2 may be thought of as genuine contemporary hypotheses about ultimate physical reality. Each is thus an epistemic possibility about how the actual world might as a matter of fact be. As in the Twin Earth scenarios discussed before, it seems that each of these scenarios is such that we can say that if it turns out that the scenario is the actual scenario, then our spatial experiences are by and large veridical. Likewise, we can consider different subjects who have phenomenally identical spatial experiences, one in a world in which G_1 is true, one in a world in which G_2 is true, and so on. The subjects can have phenomenally identical spatial experiences that are all veridical, despite being situated in environments that have *qualitatively* different spatial properties.

It might be thought that there is a clear difference between this sort of qualitative spatial Twin Earth scenario and the inverted spectrum scenario. Part of what allows us to think that there is no privileged relationship between colors as we experience them and physical color is that science has failed to show that external objects have anything that resembles the colors of our experience. Moreover, science has shown us that the properties that objects of the same color *do* have are a motley bunch.²⁹

By contrast, the natural sciences do have use for spatial properties and relations. And the causes of our spatial experiences are not nearly so diverse as in the case of color. But these distinctions between the case of color and spatial experience do not suffice to establish that there is an intrinsic similarity between the spatial features of experience and what those experiences represent. They suggest only that the properties that spatial experiences do represent are less “anthropocentric” than the colors—perhaps of interest in a way that is less relative to the contingencies of our own perceptual systems.

One tempting way to accommodate these spatial Twin Earth scenarios might be to adopt a theory of spatial content on which the represented properties are indexed to the subject’s actual world. Oscar’s spatial experiences, given that he is in Q_1 , represent one set of physical spatial properties. Twin Oscar, given that he is in Q_2 , represents a different set of properties. But as with the similar response to the Doubled Earth scenario, this would be an abandonment of Russellianism. Oscar and

²⁹ See Nassau (1980).

Twin Oscar are by hypothesis phenomenal duplicates. If their experiences nonetheless attribute different spatial properties to their respective environments, then phenomenal content is not Russellian content. Sameness of phenomenal character does not entail sameness in represented properties, but instead sameness of mode of presentation or condition on reference.

6. Fregean Phenomenal Content

It may seem at this point that the contents of spatial experiences place almost no constraint on how the external world must be in order for the experiences to be veridical. But that would be a mistake. The preceding arguments show that, contrary to Russellianism, the phenomenal content of spatial experiences does not consist in the attribution of specific objective spatial properties. However, those arguments leave open the possibility that the phenomenal content of an experience consists in having a certain mode of presentation of represented properties. According to a Fregean theory of phenomenal content, what is in common content-wise between phenomenally identical experiences need not be the properties represented by those experiences. Instead, experiences with the same phenomenal character represent properties *in the same way*. These modes of presentation can be understood as conditions on reference that, had by different subjects in different environments, can have different properties in their extension.

Consider again the possibility of inverted spectra without illusion. Objects that cause phenomenally red experiences in Jack cause phenomenally green experiences in Jill, and vice versa. We can imagine a case in which Jack and Jill have phenomenally identical color experiences, as when Jack looks at a strawberry and Jill looks at a lime. The intentionality that their experiences have in common cannot consist in the properties that their experiences attribute to their respective fruits—the lime and the strawberry have different physical color properties. Instead, it appears that Jack and Jill represent different properties via the very same phenomenal modes of presentation.

A first inclination might be to think of these phenomenal modes of presentation as Fregean senses. But if we restrict ourselves to a strict analogy with Frege's philosophy of language, it is not clear that we can adequately accommodate inverted spectrum cases or the spatial cases discussed here. On a typical way of understanding Fregean senses, sense by itself determines reference. This entails that two representations with the same sense must have the same reference. But inverted

spectrum cases present circumstances in which the same mode of presentation can determine a different reference. For example, the mode of presentation under which Jack visually represents red things is the same as the mode of presentation under which Jill represents green things.

Some of the features needed for understanding the relationship between sense and reference that is applicable to phenomenal content are captured within the two-dimensional semantic framework.³⁰ I will briefly illustrate a Fregean theory of spatial phenomenal content using ideas from such a semantic theory, although there may be other useful ways of understanding such content. In two-dimensional semantics, modes of presentation can be thought of as corresponding to primary intensions, functions from centered worlds considered as actual to properties. A centered world is a possible way the world could be, with a marked center indicating an individual and a time. The same function, given a different centered world, can return a different property.

For instance, the primary intension of my concept “water” picks out H₂O in the actual world. The same intension might pick out XYZ on Twin Earth.³¹ This reflects the fact that *if it turns out* that the actual world is Twin Earth, and the oceans and lakes are filled with XYZ rather than H₂O, then “water” refers to XYZ. The primary intension thus captures the way in which the extension of a concept depends on facts about the world. Two individuals might share a concept that has the same primary intension, but given that they are situated in different worlds, the extensions of their concepts might differ. Oscar’s water concept, since he is on Earth, will have as its extension H₂O. Twin-Oscar’s water concept, on Twin Earth, will have as its extension XYZ.

The inverted spectrum scenario considered earlier is a form of Twin Earth case, and places a similar constraint on the correct theory of phenomenal content. When Jack and Jill have phenomenally identical color experiences, there is an intentional feature of their experiences that they have in common in virtue of their shared phenomenology. But given that their respective bluish experiences can both be veridical despite being caused by objects with entirely different physical colors, this shared content cannot consist in a common physical color property that is attributed by both experiences. This is much like Oscar and Twin-Oscar, who intuitively are in cognitive states with a form of shared content when they are both thinking “water is wet”. This content cannot consist in the extension of their

³⁰ See Chalmers (1996, 2002b).

³¹ Putnam (1975).

concepts, since Oscar's water concept is about H₂O whereas Twin-Oscar's is about XYZ.

As in the case of conceptual contents, we can identify the common intentional feature between Jack and Jill with a shared primary intension. A phenomenally blue experience picks out, roughly, the property in the environment that typically causes blue experiences in the subject.³² This same primary intension in Jack picks out one set of physical properties, and in Jill it picks out a different set of physical properties. It is this indexical feature that allows for Jack and Jill to represent the same physical color property under different modes of presentation, and to represent different physical color properties under the same mode of presentation. "Reddish" experiences, given the actual world centered on Jack, return physical redness as their extension. A phenomenally identical experience, given the actual world centered on Jill, returns physical greenness.³³

The consideration of spatial Twin Earth cases suggests that the content of spatial experience, like color experience, is Fregean. The *way* things look to Oscar and Big Oscar, as they look at the distant trees in their respective environments, is precisely the same. The way something looks to Oscar when it is 10 meters away is the way something looks to Big Oscar when it is 20 meters away. These "ways of appearing" cannot simply be the spatial properties that objects appear to have. Oscar and Big Oscar are both having veridical experiences, but the objects they are viewing do not have the same spatial properties. Instead, we might identify these spatial ways of appearing shared by Oscar and Big Oscar with modes of presentation of spatial properties.

As in the case of phenomenal color content, these modes of presentation are intentional features of experiences, placing a condition on reference. Spatial content undoubtedly places something like a causal condition on reference. In order for my experience as of something roughly twenty meters away to be veridical, it surely must be the case that the object perceived has a property that typically causes experiences in me that are phenomenally like that, under relevant conditions.³⁴ Experiences of

³² I give a more detailed account of the phenomenal content of color experience in my [Author's work].

³³ I am assuming that Jack and Jill are inverts in the actual world. There may be other possible worlds in which Jack has a perceptual system like Jill's in the actual world. A reddish experience, centered on Jack in that world, returns physical greenness.

³⁴ It might be thought that the causal condition is too strong. Perhaps there need only be a systematic correspondence between phenomenal properties and the represented external property. For instance, there is the possibility of "veridical

distance have indexical modes of presentation, picking out the property that typically causes experiences of that type for the subject. Had by Oscar, an experience like the one imagined in seeing a tree in the distance picks out the property of being 10 meters away from Oscar. Had by Big Oscar, the very same mode of presentation picks out the property of being 20 meters away from Big Oscar. The trees in Oscar and Big Oscar's environments are 10 and 20 meters away from them, respectively. Thus Oscar and Big Oscar can both be having veridical experiences of the distances of the trees.

An equally significant aspect of spatial content concerns the internal structure of spatial experience. Consider the experience of a perfect circle. If one were to describe the nature of one's experience, one might note that each point on the circle is experienced as being the very same distance from the center of the circle as every other point on the circle. This is a fact about the experience, and the relations among various aspects of the experience. Spatial experience does not consist of isolated and individual units, but rather has a complex internal structure. This structure does not only consist in relations among aspects of experience at a time, as in the case of experiencing several things at once within one's visual field. There are also relations of similarity and difference across time. An object can appear larger than another one seen before, or further away, or differently shaped.

The structure of spatial experience seems to be a central aspect of spatial content. Just as the *experience* of a circle is such that each point on the circle, as experienced, is equidistant from the center, the external object of perception—the circle itself—is represented by the experience as having external points on its circumference that are equidistant from its center. The upshot of the previous sections has been that there are myriad possible external properties corresponding to the relevant experience of distance that are all compatible with the circular experience. The constraint placed on spatial content by the internal structure of

hallucination" (Lewis 1980). You might, for example, have a veridical experience as of there being a green lamp three feet in front of you. The experience might not have been caused by the green lamp in front of you, but instead via direct brain stimulation from a neurosurgeon. Arguably, the experience is veridical, whether or not it should count as a genuine *perception* of the lamp. But this sort of example does not count against the causal condition. The causal condition says that the property represented by a spatial phenomenal quality must be a property that typically causes experiences with that phenomenal quality under the relevant conditions. This does not require that in order for a token instance of the phenomenal quality to be veridical, it must have been caused on that particular occasion by the relevant external property. The causal condition thus allows for veridical hallucination. It only rules out wide-scale veridical hallucination.

spatial experience is one of *isomorphism*. Whatever relation it is that corresponds to the experience of the distance between a point on the circle and the center of the circle, the structure of the experience is such that the very same relation must be instantiated between the center of the circle and every other point on its circumference.

The phenomenal contents of spatial experiences are thus holistically determined, in part by the complex structure of relations among aspects of spatial experience. Though the constraints imposed by this structure are significant, they only impose an isomorphism between relations within spatial experience and relations among external spatial properties. The example of Oscar and Big Oscar was one that involved differences in spatial magnitudes that preserved an isomorphism between their respective environments. The considerations concerning the intrinsic nature of external space suggested that only its structure, and not its qualitative nature, was constrained by spatial content. But the requirement of an isomorphism between spatial experience and external space leaves open the possibility of further spatial Twin Earth scenarios that might not initially have seemed as plausible. My final example will concern the case of shape.

7. El Greco World

On El Greco World, everything is stretched so that objects are twice as tall as objects on Earth.³⁵ Objects are stretched vertically relative to the center of El Greco World. We can imagine that this is due to some sort of gravitational effect at the center of El Greco World, one that is consistent with the actual laws of nature. If necessary, we can imagine that the laws of nature are different on El Greco World (either by imagining that El Greco World is in another possible universe or that the laws of nature are such that things behave differently on El Greco World than near Earth).

The “stretching” on El Greco World that I will consider is plastic rather than rigid. That is, El Greco World is not a once-off vertically stretched duplicate of Earth. Rather, objects are dynamically stretched in the vertical direction. A person who is six feet tall (head to toe) while lying down on El Greco World, becomes twelve feet tall after standing up. The distance between his ears—one foot while

³⁵ The idea of an “El Greco World” comes from Hurley (1998), who uses it for a different purpose.

standing, is two feet when he lies on his side. A circular ball, rolled on the ground on Earth, retains its shape. The same ball, on El Greco world, continuously changes its dimensions as it rolls, at each moment remaining taller than it is wide. It will remain egg-shaped, but the two most distant points on its surface will constantly change as it rolls.

Stretched Oscar is Oscar's counterpart on El Greco World. He too is stretched vertically relative to the center of El Greco World. But just like Big Oscar, Stretched Oscar is a phenomenal duplicate of Oscar. He has visual experiences that are phenomenally just like Oscar's.

One might wonder how it is that Stretched Oscar could be a phenomenal duplicate of Oscar. Just as in the case of Doubled Earth, it seems that if one of us mere Earthlings (such as Oscar) were to be transported to El Greco World (and not be destroyed in the process), he would certainly have phenomenally *different* experiences than those he would have had from the corresponding location on Earth. The new environment would be sufficiently different such that it would cause different experiences in him. Perhaps, as seems plausible, objects would appear to change shape when rotated relative to the center of El Greco World, seeming to stretch in size along the vertical dimension.³⁶ If Stretched Oscar on El Greco World has experiences like that, then clearly he would not be a phenomenal duplicate of Oscar on Earth.

To suppose that Stretched Oscar is a phenomenal duplicate of Oscar thus requires that we suppose that Stretched Oscar is suitably physically different than Oscar, in a way that compensates for the fact that they are situated in radically different environments. Many of the ways that Stretched Oscar could be different from Oscar would not make it the case that the two have phenomenally identical experiences. The El Greco World argument simply requires that it be *possible* that Stretched Oscar is a phenomenal duplicate of Oscar, in the sense that there is a way of specifying the differences between Stretched Oscar and Oscar such that despite

³⁶ Even this supposition requires that we bracket the fact that Oscar's body, including the brain, would be dynamically stretched vertically. No doubt this would have significant effects on brain functioning, such that Oscar's experiences would in fact be either wildly different from the way they are imagined here, or he would not have any experiences at all (perhaps the brain would lose the relevant functional abilities altogether).

their being in spatially different worlds, their spatial experiences are precisely the same.³⁷

If this seems difficult to imagine, we can again suppose that Stretched Oscar is an internal functional duplicate of Oscar. For instance, it might be that Stretched Oscar has peripheral mechanisms that modulate inputs and outputs in such a way as to compensate for the differences between his environment and Oscar's. What would be required here is something that plays the same role as "color-inverting lenses" in thought experiments concerning color inversion. For any external visual inputs in Stretched Oscar, those inputs are transformed by a peripheral device into retinal stimulations that are precisely the same as those had by Oscar on Earth.

It is not difficult to conceive of a device of the needed sort. For example, we can easily consider the possibility of wearing "virtual reality goggles" that would transform any input that would normally reach the eyes of the perceiver and present to the viewer an image of the same scene that has been stretched horizontally (relative to the ground). If Stretched Oscar wore such a device his entire life, or better yet, if his eyes were physiologically such that they performed this very same function, then it is easily conceived that he would have experiences that are precisely the same as Oscar's on Earth. The vertical stretching that occurs on El Greco World would be compensated for by the horizontal stretching that occurs in his eyes, so that he is an internal functional duplicate of Oscar on Earth.

It may be that in supposing that Stretched Oscar has phenomenally identical visual experiences to Oscar, it is necessary that the relationship between experiences from the other sense modalities, including proprioception, and the properties those experiences represent, also vary between Oscar and Stretched Oscar. Whether this is needed will depend in part on the degree to which there is a necessary (rather than contingent) relationship among the sense modalities with regard to their spatial phenomenology. For instance, [name omitted for blind review] has objected to the El Greco scenario by claiming that a person on El Greco world would be a misperceiver of squareness, and could notice this by drawing or tracing out a figure that visually looked square. Without a compensating change in tactile perception or proprioception, such a subject would trace a rectangular figure and would have a phenomenological mismatch between two sense modalities. Now, it is clear that for

³⁷ However, if what I said above about phenomenal externalism as a response to the Doubled Earth argument is correct, then the argument can have force even if it is metaphysically impossible for Stretched Oscar to be a phenomenal duplicate of Oscar. We can instead consider El Greco World as an epistemic possibility about the spatial properties of *our* world. More on this below.

us those two pairs of experiences, one visual and the other proprioceptive, would be experienced as inconsistent. It is less clear that such a mismatch is the result of learned association or instead reflects a necessary relationship between the two sense modalities.³⁸ But if it is the result of a necessary relationship, then we can simply suppose that Stretched Oscar has spatial experiences from the other sense modalities that are, like his visual experiences, caused by different external spatial properties than when had by Oscar.

The inhabitants of El Greco World have visual experiences that are phenomenally like our own. But the properties of objects that cause their spatial experiences are different. Visual experiences that are in us caused by circular objects are in El Grecoans caused by what we call “ellipses”.

Consider an inhabitant of Earth, Oscar, and his phenomenal twin on El Greco World, Stretched Oscar. Oscar is looking at what we would normally call a circular object, and he is having an experience with the phenomenal character that normal Earthlings typically have when looking at circular objects. Stretched Oscar has an experience with exactly the same phenomenal character as Oscar’s. But Stretched Oscar is not looking at what we would call a “circular” object—the object in his sight is elliptical in shape.

Oscar, we can naturally suppose, is having a shape experience that is veridical. What about Stretched Oscar? As in the case of Doubled Earth and of the Qualitative Twin Earth cases, two considerations weigh heavily in favor of saying that Stretched Oscar is also a veridical perceiver of shape. One is our lack of knowledge of any privileged relationship between “circular experiences” and their typical Earthly causes, one which is absent between “circular experiences” and their typical El Grecoan causes. That is, there seems to be nothing that could ground our saying that Earthly perceivers see shapes as they really are, whereas El Grecoans systematically misperceive shape.

It might seem that the El Greco scenario is importantly different from the two types of scenarios considered earlier in a way that has already been identified as a significant feature of phenomenal content. It was noted earlier that spatial experiences have internal structure that partly contributes to phenomenal content. In the case of a circular experience, all the points on the circumference appear to be the same distance from the center of the circle. And it was claimed that, correspondingly, the points on the external circle are represented as being

³⁸ This is part of the underlying question raised by “Molyneux’s Problem” (Locke *Essay*, II, ix, 8), Morgan (1977), Evans (1985), Campbell (1996).

equidistant from the center. But it might be objected that, when Stretched Oscar has a circular experience, the external object being viewed is elliptical rather than circular. It follows, the objection continues, that the points along the perimeter of the elliptical object are misrepresented by the experience as being equidistant from the center when in fact the points at the top and bottom are twice as far from the center than those along the horizontal axis.

This would be a successful objection to the veridicality of Stretched Oscar's experience if we could assume that experiences of distance had by Oscar and Stretched Oscar both represent the same spatial *qualities*. For we described El Greco World as being a world in which everything is stretched so as to be doubled in vertical length relative to objects on Earth. "Length" here refers to the external quality that Oscar's experiences of length represent. If Stretched Oscar's experiences of length represent this very same quality on El Greco World, then the internal structure of his experiences is such that it misrepresents elliptical objects as having the very same length along the vertical and horizontal axes.

But we have already seen that the qualitative nature of space is Twin Earth-able, both respect to its geometry and its intrinsic nature. Stretched Oscar's experiences of distance need not represent the very same qualities as Oscar's experiences of distance. Indeed, the relatively static spatial lengths that are the typical causes of Oscar's experiences are not the properties that typically cause the phenomenally identical experiences had by Stretched Oscar on El Greco World. The latter are dynamical properties of objects in relation to El Greco World and its gravitational effects. And these are features that can be had in common both along the vertical and horizontal axes of the elliptical object in a way that is required in order for Stretched Oscar's circular experience to be made veridical.

A further consideration in favor of the veridicality of Stretched Oscar's shape experiences stems from the consideration of El Greco World as an epistemic possibility. El Greco World, and its spatial features, can be considered as a genuine epistemic possibility about how the actual world is, rather than counterfactually. That is, we can consider the possibility that we are in fact on El Greco World. Suppose, for example, that the part of the universe that we are in is spatially unusual compared to the rest of the universe. We might find out from physicists that the objects that typically cause us to have squarish experiences are in fact, in microphysical terms, like squashed rectangles. That is, our best physical theory's notion of microphysical spatial length might be such that objects that cause our squarish experiences do not have four sides of equal microphysical length. Instead,

those objects that cause tall rectangular experiences in us might instead be found to have four sides of equal length in microphysical terms.

This seems like a perfectly conceivable way the world might actually be, and we can imagine being confronted with this information at some future date. What would we want to say about our spatial experiences, if we were to discover that the world is like this? It seems to me that we would be inclined to say that our squarish experiences are by and large veridical, and they represent what our physical theory considers squashed rectangles. We would not say that our squarish experiences represent microphysical squares, and thus that virtually all such experiences are illusory.

Of course, it might be that we are not in a spatially unusual part of the universe. And it might be that our squarish experiences are caused by microphysical squares rather than rectangles. But the point is that our judgments of veridicality survive the consideration of either epistemic possibility as actual. If we are on Earth as we ordinarily suppose it to be, our spatial experiences are by and large veridical. If we are on El Greco World, our spatial experiences with the very same phenomenal character are also nonetheless largely veridical. Objects that cause spatial experiences of the same phenomenal character under these two epistemic possibilities have different spatial properties. And this entails that, contra a Russellian theory of spatial phenomenal content, what property squarish experiences represent can vary across possible worlds and individuals.

8. Some Consequences

As discussed in the introduction, one of the attractions of Russellian theories of phenomenal content is that it is compatible with the idea that in perceptual experience we have a “direct grasp” on features of external objects. Though such an idea is rather controversial in the case of color, it has seemed to many to be an attractive view about the relationship between spatial experience and physical spatial properties and relations.

I have argued that Russellianism for the phenomenal content of spatial experience is false. There is no single spatial property that a particular type of spatial experience necessarily represents. If that is right, then it cannot be said that in having an experience of that type we “directly grasp” specific spatial features of external objects. According to Fregeanism, spatial experiences acquaint us, in the

first instance, only with a mode of representing some physical spatial property or other. I've suggested that this is as it should be. It seems that there are a wide range of epistemic possibilities about physical space and its nature, all of which are compatible with the content of spatial experience.

The conclusion reached here also has interesting consequences for the traditional distinction between primary and secondary qualities. One way of drawing that distinction concerns the kinds of properties our experiences directly acquaint us with. It might be thought that color experiences do not directly acquaint us with mind-independent features of external objects. The properties that we are aware of in color experience are qualities in the mind. By contrast, it might be thought that the features that we are directly aware of in spatial experience—size, shape, distance, etc—are features that external objects really do have, independent of perception. If what I've argued here is correct, there is no relevant contrast in this regard between color and spatial experience. Neither acquaints us with mind-independent features of external objects. All qualities of which we are directly aware in experience are secondary qualities, understood in this way.

An alternate way of drawing the distinction between primary and secondary qualities concerns the properties that our experiences *represent*. Color experiences, it might be thought, represent mere dispositions to appear a certain way to creatures like us. That is, color experiences represent mind-dependent properties. Spatial experiences, by contrast, might be thought to represent mind-independent properties. Though this might be a useful way of drawing the distinction between primary and secondary qualities, the view I've defended here leads naturally to the conclusion that both colors and spatial properties are primary qualities. Color and spatial experiences both can represent mind-independent properties, with the dispositional element consisting not in what is represented but in the way of representing .

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