

# Perceptual Constancies and Perceptual Modes of Presentation

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## §1. Mode of presentation

*Origins of Objectivity* is an instant classic --- a milestone in modern philosophy of mind. It masterfully integrates revelatory philosophical argumentation with detailed empirical case studies drawn from contemporary science. The centerpiece is a systematic account of perception, securely grounded in perceptual psychology, that should serve as a benchmark for future inquiry. Burge's discussion also offers numerous striking insights into mental activity more generally. In this paper, though, I emphasize points of disagreement. I will criticize one relatively localized strand in Burge's account, neglecting many appealing features of his overall approach.

According to Burge, perception generates an analogue to Frege's distinction between *sense* and *reference*: "the representational content that helps type-individuate perceptual states is not the particulars perceived. Nor is it the repeatable types that are attributed. It consists in modes of presentation as of particulars, and modes of presentation as of attributes that are perceptually attributed" (p. 385).<sup>1</sup> To develop his Fregean analysis, Burge introduces the notion of a *perceptual attributive*: "A perceptual attributive is an aspect of perceptual representational content that functions to indicate a repeatable type and to group or characterize purported particulars as being of that type" (p. 380). Different perceptual attributives can represent the same physical attribute. For example, different perceptual attributives can represent squareness.

Burge motivates his Fregean viewpoint by citing various phenomena, including referential perceptual illusions (pp. 385-287), distinctions among sensory modalities (p. 40),

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<sup>1</sup> Page references are to *Origins of Objectivity*, unless otherwise noted.

differences between egocentric and allocentric spatial frameworks (2005, pp. 7-9), and changes in attention (p. 365, fn. 98). I find many of these examples compelling. However, I want to resist the examples that figure most prominently in Burge's exposition: *perceptual constancies*. I will critique Burge's treatment of the relation between constancies and modes of presentation.<sup>2</sup>

## §2. The individuation of perceptual attributives

Perceptual constancies are “capacities to represent environmental attributes, or environmental particulars, as the same, despite radically different proximal stimulations” (p. 114). My perceptual states may attribute the same size to a body even as the body moves further away and hence subtends a smaller visual angle (i.e. a smaller image size on the retina). Or my perceptual states may attribute the same color shade to a surface even as background illumination changes considerably. Or my perceptual states may attribute the same shape to an object even as my viewing angle changes.

According to Burge, perceptual constancies illustrate the distinction between *mode of presentation* and *representatum*. “Many perceptual attributives represent entities as square. Different *visual* perspectives can represent something as square in different ways (for example, corresponding to different visual angles on a square something).” (p. 36). Similarly, Burge compares the percepts that result when I view a red surface illuminated by white light versus the same red surface illuminated by blue light: “Each mode of representation, each representational content, indicates the same color shade. The individual perceiver perceives the different instances *as* instances of the same color shade through different modes of presentation of it” (p. 412). More generally: “Where a constancy centers on an attribute, different perceptual

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<sup>2</sup> Nudds (2012) offers similar criticisms.

attributives, formed from different registrations of proximal stimulation, commonly indicate and attribute the same attribute” (p. 412).

I want to question Burge’s analysis. To illustrate, suppose I view a square object when presented in the frontal plane, then when presented at a slant relative to the frontal plane.

Suppose I successively experience percepts  $P_X$  and  $P_Y$  that both attribute squareness to the perceived object. Why should we say that  $P_X$  and  $P_Y$  feature distinct perceptual attributives that both represent squareness? The mere fact that very different proximal inputs cause  $P_X$  and  $P_Y$  does not show that the two percepts represent squareness under different modes of presentation. By analogy, there are various routes through which one might judge *that there is mercury in the beaker*: testimony, observation, enumerative induction, etc. In each case, one’s mental state may represent mercury under the same mode of presentation. Very different proximal inputs can induce the same mode of presentation *at the level of thought*. Can’t very different proximal inputs induce the same mode of presentation *at the level of perception*?

Notably, we need not embrace Burge’s analysis to acknowledge many important differences in representational content:

- *Shape constancy*. Percepts  $P_X$  and  $P_Y$  derive from a square object viewed at different orientations. Assuming that the perceptual system operates normally,  $P_X$  and  $P_Y$  reflect this spatial difference.  $P_X$  represents the square as located in the frontal plane, while  $P_Y$  represents it as slanted at a certain angle relative to the frontal plane.
- *Size constancy*. Compare two percepts  $Q_X$  and  $Q_Y$  that attribute the same size to a body viewed from different distances. Assuming that the perceptual system operates normally,  $Q_X$  and  $Q_Y$  reflect this difference. The percepts attribute different distances to the body.<sup>3</sup>

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<sup>3</sup> Should we also say that each percept represents the appropriate visual angle? Some psychologists (McCready, 1985) and philosophers (Tye, 2002) claim that we should. I remain neutral on this question.

- *Color constancy*. Compare two percepts  $R_X$  and  $R_Y$  that attribute the same color to a surface viewed under white light versus blue light. Assuming that the perceptual system operates normally,  $R_X$  and  $R_Y$  reflect this difference in background illumination. Roughly speaking,  $R_X$  represents the illuminant as white, while  $R_Y$  represents it as blue.

In each pair of examples, the first and second percept have different representational contents. The percepts represent different orientations, distances, or illuminants.<sup>4</sup> One can acknowledge these differences without embracing Burge's analysis. In each pair, one can agree that the two percepts feature *distinct perceptual attributives* without saying that the percepts feature *distinct perceptual attributives that represent the same physical attribute*.

Burge recognizes that  $P_X$  and  $P_Y$  represent different surface slants (pp. 383-384), that  $Q_X$  and  $Q_Y$  represent different distances (p. 388, fn. 25), and that  $R_X$  and  $R_Y$  represent different illuminants (p. 412, fn. 47). There are several passages where such differences in content appear to be his main concern (pp. 40-41; p. 355, fn. 85; pp. 387-388; p. 413). These passages endorse the relatively weak claim:

- (1) If a perceptual constancy centers on an attribute, then distinct exercises of the constancy, prompted by differing proximal inputs, commonly yield perceptual states with different representational contents.

rather than the stronger claim:

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<sup>4</sup> One wrinkle here is the so-called *size-distance paradox*: explicit perceptual judgments of distance sometimes diverge from whatever distance-estimate the perceptual system employs when estimating size (Palmer, 1999, pp. 323-324). Similarly, explicit perceptual judgments regarding the illuminant sometimes diverge from whatever illuminant-estimate the perceptual system employs when estimating surface reflectance (Rutherford and Brainard, 2002). To handle these phenomena, we must sharply distinguish between *the perceptual system's* estimates of distal properties and *the perceiver's* judgments regarding those same properties.

- (2) If a perceptual constancy centers on an attribute, then distinct exercises of the constancy, prompted by differing proximal inputs, commonly yield perceptual states featuring distinct perceptual attributives that represent the same physical attribute.

Burge could retrench from (2) to (1) while leaving virtually all other aspects of his position unchanged. As we have seen, however, Burge endorses (2). The contrast between (1) and (2) is sufficiently important to merit investigation. Why should we endorse (2) as well as (1)?<sup>5</sup>

In addressing this question, we must distinguish two different strategies for developing (2). I will call them *the complex strategy* and *the primitive strategy*. To illustrate how the two strategies differ, consider  $Q_X$  and  $Q_Y$ . We have agreed that  $Q_X$  and  $Q_Y$  feature distinct attributives  $D_X$  and  $D_Y$  that represent distinct distances. According to the complex strategy,  $Q_X$  and  $Q_Y$  feature a uniform size attributive  $S$ , which combines with the distinct distance attributives to form distinct complex attributives.  $Q_X$  features a complex attributive formed from  $S$  and  $D_X$ , while  $Q_Y$  features a distinct complex attributive formed from  $S$  and  $D_Y$ . Each complex attributive represents “size at a distance.” So  $Q_X$  and  $Q_Y$  feature distinct complex attributives that represent a single size  $s$ . In contrast, the primitive strategy holds that  $Q_X$  and  $Q_Y$  feature distinct primitive perceptual attributives  $S_X$  and  $S_Y$  that both represent size  $s$ . The difference between these two primitive perceptual attributives does not reduce to a difference in represented distance, or to a difference in any other represented property.

The complex strategy seems less extreme than the primitive strategy. Yet even the complex strategy requires defense. Proponents must show that each percept employs the

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<sup>5</sup> Burge sometimes emphasizes phenomenology (p. 355, fn. 85). He says of  $Q_X$  and  $Q_Y$  that “the body’s size looks different, even as it looks to have the same size” (p. 388, fn. 25). One can agree that the body’s size “looks different” without agreeing that  $Q_X$  and  $Q_Y$  feature distinct attributives that represent the same size. One can say that the body’s size “looks different” due to overall differences in representational content. For example, one might urge that, in each case, the body’s size looks how that size looks when attributed to a body that is perceptually represented as a certain distance away. Thus, I doubt that one can support (2) by citing phenomenology. (I do not say that Burge attempts to do so.) For related discussion of perceptual constancies and visual phenomenology, with citations to the large philosophical literature on these issues, see (Matthen, 2010) and (Tye, 2002).

postulated complex attributive, rather than simply attributing size  $s$  to the perceived object and separately attributing a certain distance to that object. From the fact that a percept applies size attributive  $S$  to an object and distance attributive  $D_X$  to that same object (under the same mode of presentation), it does not follow that the percept applies a complex attributive formed from  $S$  and  $D_X$  to that object. By analogy, if Henry believes *that John is tall and Frank is smart and John is smart*, it does not follow that Henry's belief applies a complex attributive *tall and smart* to John. Nor do I see any interesting sense in which Henry's belief represents tallness under a different mode of presentation than his belief *that John is tall and Frank is smart and John is generous*.

Burge does not explicitly distinguish the complex strategy and the primitive strategy. He takes no official stand between the two strategies. However, the complex strategy does not harmonize well with the Fregean rhetoric that pervades his exposition. Indeed, the complex strategy is available to a radical "Russellian" who individuates perceptual contents entirely through their *representata*. Given Burge's various terminological legislations (pp. 30-56), it may be true that the complex strategy depicts  $Q_X$  and  $Q_Y$  as representing the same size under different modes of presentation. Nevertheless, the complex strategy does not suggest that "the representational content that helps type-individuate perceptual states... consists in... modes of presentation as of attributes that are perceptually attributed" *as opposed to* "the repeatable types that are attributed." Those who develop (2) through the complex strategy can say that attributive elements in perceptual content are individuated solely by the physical attributes that the relevant percepts attribute. Hence, the complex strategy does not secure a significant theoretical role for modes of presentation over and above *representata*.

### §3. Perceptual constancies as analogues to Frege cases

Fregeans frequently motivate the sense-reference distinction by citing informative identities. In several passages, Burge seeks to generalize the Fregean strategy from thought to perception. He writes that “[c]onstancies are the perceptual analogs of Fregean informative identities. A given perceptual *representatum* (kind, property, relation or particular) is represented as that representatum, even as it is presented in different ways, from different representational perspectives” (p. 411). He also suggests that perceptual constancies yield “perceptual analogs of *that object’s size (or color) A is the same as that object’s size (or color) B*” (2005, p. 8). How analogous are perceptual constancies to standard “Frege cases”? And how does the putative analogy bear upon Burge’s Fregean analysis of perceptual constancies?

Suppose that I perceive bodies *X* and *Y* of equal size, where *X* is closer than *Y*. Suppose that my perceptual system attributes size *s* to *X* and size *s* to *Y*. I may wonder whether *X* and *Y* really have the same size. For example, I may worry that a perceptual illusion is at work. Depending on the circumstances, I may or may not eventually judge:

*X’s size is the same as Y’s size.*

But does my perceptual system feature a perceptual state with anything resembling this content? Do my *perceptual* states, as opposed to my *cognitive* states, attribute identity to *X*’s size and *Y*’s size? To my knowledge, current science provides no basis for answering affirmatively.

Burge does not say that the perceptual system literally attributes identity to *X*’s size and *Y*’s size. His view seems to be that the perceptual system “implicitly identifies” *X*’s size and *Y*’s size (2005, p. 8), without literally representing identity. But why should we say that the “implicit identification” involves distinct perceptual size attributives? Why not simply say that the perceptual system “implicitly identifies” *X*’s size and *Y*’s size by applying a uniform size attributive to *X* and *Y*?

Standard Frege cases at the level of thought involve non-trivial identification of a *representatum* from different representational perspectives. For example, it is a cognitive accomplishment to discover that Hesperus is Phosphorus, or that mercury is quicksilver. Analogously, Burge claims that perceptual constancies involve “non-trivial identifications of properties and relations in the perceptual system” (2005, p. 8). He suggests that “the identification is not guaranteed by the form of the perceptual content, or the perceptual abilities marked by the content” (2005, p. 7).

Burge’s emphasis upon non-trivial perceptual identification does not mesh well with the complex strategy for developing (2). To illustrate, suppose that my perceptual system applies to  $X$  a complex attributive formed from size attributive  $S$  and distance attributive  $D_X$ , while applying to  $Y$  a complex attributive formed from the same size attributive  $S$  and a different distance attributive  $D_Y$ . What room remains for non-trivial perceptual identification of  $X$ ’s size and  $Y$ ’s size? It seems like a fairly trivial accomplishment to treat the two complex attributives as representing the same size. Perceptual “form” guarantees sameness of *representatum*. Of course, it is a non-trivial accomplishment to attribute the postulated complex attributives to  $X$  and  $Y$  (assuming that the perceptual system really does so). But this accomplishment seems to involve non-trivial *estimation* of distal properties, rather than non-trivial *identification* of a property as represented under different modes of presentation.

Setting aside any differences between the complex and simple strategies, a fundamental worry remains. Why should we suspect that perceptual constancies involve non-trivial perceptual identification? Why not instead postulate trivial perceptual identification, reflecting the use of a single uniform attributive? In an intriguing passage, Burge writes (p. 412):



There is perhaps no surprise or news for the individual that the colors attributed in exercises of perceptual constancies are the same, when they are the same. But when they are veridically perceived as the same, the sameness is not “logically” guaranteed; and sometimes perceptual errors occur. Veridical representation as of the constant color shade under different modes of presentation is a perceptual accomplishment.

Suppose that my perceptual system attributes a single color shade  $c$  to surfaces  $X$  and  $Y$ , even though  $X$  and  $Y$  are lit by quite different illuminants. Clearly, there is no guarantee that both color attributions are veridical. Nor is there any guarantee of my perceptual system arriving at those very color attributions. Diverse factors might have led my perceptual system to attribute different color shades to  $X$ , to  $Y$ , or to both. So veridical attribution of a constant color shade, as elicited by diverse proximal inputs, is undoubtedly a perceptual accomplishment. Acknowledging this perceptual accomplishment does not require us to postulate distinct perceptual attributives that represent the same color shade. We can say that the perceptual accomplishment consists in veridically applying a single perceptual attributive when prompted by diverse proximal inputs.

A recurring theme in Burge’s treatment is that, even when perceptual attributives represent the same attribute, the perceptual system may treat the attributives as if they represent different attributes. In this vein, Burge writes (2005, p. 7):

Suppose that the perceptual system or the animal’s behavior allows for the *possibility* that two occurrent perceptions at different moments are referentially associated with different represented entities... The individual and the perceptual system may be perceptually referring to only one entity. They may even treat the different perceptual states *as* referring to one. Still, if there is a psychological/logical possibility that the perceptual

states are perceptions of distinct entities, the representational content --- the mode of presentation --- varies.

And also (2005, p. 8):

[I]f... the individual's perception represents a property as the same but computes the sameness from two different distances or angles, the modes of presentation of the property will normally be different even though they are treated as perceptions of the same property. It is an empirical question whether the individual's representational system has dispositions that might treat the referents of the two token representations as different. It is an empirical question whether the system might allow collateral information to bring the presumption of sameness of referent into question. It is an empirical question whether the representations that are treated as perceptions of the same property are in fact representations of the same property.

Do these passages support Burge's Fregean analysis of perceptual constancies?

Suppose that my perceptual system uses (simple or complex) attributive  $S_X$  to attribute size  $s$  to body  $X$  and (simple or complex) attributive  $S_Y$  to attribute size  $s$  to body  $Y$ , where  $X$  subtends a larger visual angle than  $Y$ . There is a clear sense in which my perceptual system "allows for the possibility" that  $X$  and  $Y$  have different sizes. Namely, my perceptual system is prepared to attribute a different size to  $X$  than to  $Y$ . If depth cues were to change, or if "collateral information" were different, then the same subtended visual angles might instead cause attributives  $S_X$  and  $S_{Y^*}$ , where  $S_{Y^*}$  denotes size  $s^* \neq s$ . These psychological possibilities do not suggest that  $S_X$  and  $S_Y$  are distinct attributives. They merely show that various complex factors influence perceptual estimation of size. Even though "collateral information" can "bring into question" whether  $X$  and  $Y$  have the same size, it does not follow that "collateral information"

can “bring into question” whether  $S_X$  and  $S_Y$  represent the same size. By allowing for the possibility that  $X$  and  $Y$  have different sizes, my perceptual system does not thereby allow for the possibility that  $S_X$  and  $S_Y$  represent different sizes.<sup>6</sup>

In what sense might mental activity “allow for the possibility” that  $S_X$  and  $S_Y$  represent different sizes? One illustration might be a case where the perceptual system applies  $S_X$  to a body while simultaneously withholding application of  $S_Y$  to that same body (represented under the same mode of presentation). More generally, we might discover some relevant functional difference between how the perceptual system handles  $S_X$  and how it handles  $S_Y$ , thereby leading us to say that  $S_X$  and  $S_Y$  are distinct attributives. I am not sure whether there exist any clear, non-question-begging examples of this kind. As Burge indicates, the matter is empirical. But the mere phenomenon of perceptual constancy provides no evidence either way. Perceptual constancy seems equally consistent with the following scenario: different proximal inputs cause percepts that represent the same distal size  $s$ , and those percepts represent  $s$  through the same perceptual attributive  $S_X (= S_Y)$ . In this scenario, the perceptual system does not “allow for the possibility” that the size attributive caused by  $X$  represents a different size than the size attributive caused by  $Y$ .

It would be helpful for Burge to discuss how exactly he envisions the putative analogy between perceptual constancies and informative identities. More generally, it would be helpful

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<sup>6</sup> According to Burge, “perceptual attributives semantically determine, or *specify*, the attributes that they attribute. They are not only *as of* the attributes; they are *as of* the same attribute in every context of use and with regard to any possible situation” (p. 76).  $S_X$  specifies size  $s$ , and  $S_Y$  also specifies size  $s$ . Thus,  $S_X$  and  $S_Y$  are guaranteed to represent the same attribute with respect to every context of use and every possible situation. In that sense, it is not possible for  $S_X$  and  $S_Y$  to represent different sizes. However, the perceptual system might still “allow for the possibility” that they represent different sizes.

for him to clarify how he thinks that perceptual constancies support his Fregean analysis of perceptual content.<sup>7</sup>

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<sup>7</sup> I am indebted to Jacob Beck, Robert Briscoe, Timothy Butzer, Kevin Falvey, Mohan Matthen, and Amir Saemi for comments that greatly improved this paper. I am also grateful Tyler Burge for helpful discussion of these issues.