

QUALIA AND THE SENSES

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How should we characterize the nature of perceptual experience? Some theorists claim that colour experiences, to take an example of perceptual experiences, have both intentional properties and properties called 'colour *qualia*', namely, mental qualitative properties which are what it is like to be conscious of colour. Since proponents of colour *qualia* hold that these mental properties cannot be explained in terms of causal relations, this position is in opposition to a functionalist characterization of colour experience.

However, other theorists who hold a view called 'intentionalism' contend that while colour experiences have intentional properties, they do not have colour *qualia*. Intentionalism claims that colour experiences are representational states which have no qualitative properties apart from the physical properties of physical objects which they represent. This view fits naturally with a functionalist characterization of colour experience. For example, intentionalism may be combined with a long-arm or externalist characterization, according to which visual experiences supervene on causal relations between physical properties of physical objects and their effects on perceivers' visual systems.¹ (Although my focus is the opposition between those who accept colour *qualia* and intentionalists, these two positions do not exhaust the positions that are held. For example, C.L. Hardin and James A. McGilvray reject *qualia*, but still identify the qualitative aspect of colour experience with mental qualitative properties of visual experience.² These theorists offer a functionalist characterization of colour experience which may be called a short-arm or internalist characterization, according to

¹ See F. Dretske, *Naturalizing the Mind* (MIT Press, 1995), ch. 5; and M. Tye, *Ten Problems of Consciousness* (MIT Press, 1995), §§5.4 and 6.1, for defences of externalist functionalism about perceptual experience. Dretske and Tye offer different versions of intentionalism, but their differences do not matter from the standpoint of this paper.

² C. Hardin, *Color for Philosophers: Unweaving the Rainbow* (Indianapolis: Hackett, 1993), pp. 109–12; J. McGilvray, 'Constant Colors in the Head', *Synthese*, 100 (1994), pp. 197–239.

which visual experiences supervene on internal causal relations, namely, neurally realized processes of our visual systems.)

How can we adjudicate this dispute? Arguments for the view that perceptual experiences have *qualia* typically rely on thought-experiments involving absent *qualia* or an inverted spectrum (also see Ned Block's related 'inverted earth' thought-experiment),³ and defenders of intentionalism have focused on attacking these arguments.⁴ Setting these arguments aside, I shall examine another argument for accepting *qualia*, which H.P. Grice offers in his well known paper 'Some Remarks about the Senses'.⁵

Grice argues that considerations about our distinctions among the senses provide a basis for accepting *qualia*. Similar reasoning has been put forward more recently: for example, Block also claims that considerations about differences among the senses provide such a basis.⁶ However, this kind of support for *qualia* has been less commonly discussed. Furthermore, Block's statement of these considerations, merely made in passing, can be bolstered by Grice's argument; thus Grice's argument deserves greater attention.

³ N. Block, 'Are Absent *Qualia* Impossible?', *Philosophical Review*, 89 (1980), pp. 257–74, provides an example of an argument for accepting *qualia* which relies on the absent *qualia* thought-experiment; S. Shoemaker, 'Colors, Subjective Relations, and *Qualia*', in E. Villanueva (ed.), *Philosophical Issues, 7: Perception* (Atascadero: Ridgeview, 1996), pp. 55–66, provides an example of such an argument which relies on the inverted spectrum thought-experiment. Block's inverted earth thought-experiment is described in his 'Inverted Earth', in J. Tomberlin (ed.), *Philosophical Perspectives, 4: Action Theory and Philosophy of Mind* (Atascadero: Ridgeview, 1990), pp. 53–79.

⁴ For examples of intentionalist responses to these arguments, see G. Harman, 'Explaining Objective Color in Terms of Subjective Reactions', in Villanueva (ed.), *Philosophical Issues, 7*, pp. 1–17; Tye, *Ten Problems of Consciousness*, ch. 7, and *Consciousness, Color, and Content* (MIT Press, 2000), chs 5–6.

⁵ In R.J. Butler (ed.), *Analytical Philosophy*, First Series (Oxford: Blackwell, 1962), pp. 133–53, repr. in Grice, *Studies in the Way of Words* (Harvard UP, 1989), pp. 248–68. Page numbers in the text refer to the reprint.

⁶ Block, 'Mental Paint and Mental Latex', in Villanueva (ed.), *Philosophical Issues, 7*, pp. 19–49, at p. 28. In fact Block does not refer at all to Grice's argument. But see M. Leon, 'Characterising the Senses', *Mind and Language, 3* (1988), pp. 243–70: Leon explicitly uses Gricean considerations in arguments supporting the claim that perceptual experiences have internal mental qualitative aspects (however, Leon's description of these qualitative aspects suggests that they are characterizable in terms of internal functional processes, and so are not *qualia* in my sense). Also see D.M.M. Lopes, 'What Is It Like to See with Your Ears?', *Philosophy and Phenomenological Research, 60* (2000), pp. 439–53: Lopes provides a useful description of Grice's argument, and embraces Grice's appeal to *qualia*, but finds this appeal on the basis of considerations about a perceptual ability called facial vision. See Dretske, 'Reply to Lopes', *Philosophy and Phenomenological Research, 60* (2000), pp. 455–9, for an intentionalist response. Other recent discussions of distinguishing the senses include N. Nelkin in 'Categorising the Senses', *Mind and Language, 5* (1990), pp. 149–65, and *Consciousness and the Origins of Thought* (Cambridge UP, 1996), ch. 1, offering conditions for distinguishing senses which are consistent with intentionalism, but he does not endorse intentionalism. Nelkin does not consider Grice's argument. J. Heil, *Perception and Cognition* (Univ. of California Press, 1983), pp. 4–29, and B. Keeley, 'Making Sense of the Senses', presented at the 1999 Eastern Division Meeting of the APA, offer conditions consistent with intentionalism, also without endorsing this view.

I shall first describe Grice's argument and show how it supports *qualia*; I shall then offer an intentionalist response.

I. GRICE'S CONDITIONS FOR DISTINGUISHING SENSES

In 'Some Remarks about the Senses' Grice addresses the question 'What are the conditions by which we distinguish the perceptual modalities?'. He makes the problem vivid by considering a subsidiary question 'How would we evaluate the claim that a non-human creature possesses a perceptual modality that human beings do not possess?'. Grice (pp. 260–1) addresses this subsidiary question in a thought-experiment. Martians land on Earth. As it turns out, Martians have what look like two sets of human eyes. By way of one set of eyes the Martians exercise the sense of *xing*, and by way of the other set they exercise the sense of *yjing*.

According to Grice's description, *xing*, *yjing* and the human modality of seeing are similar in the following respects. The Martians identify colours and shapes by *xing* as well as by *yjing*. Both *xing* and *yjing* are sensitive to wavelengths of light. Also the Martians exercise *xing* and *yjing* by means of organs that function similarly to each other and to human eyes. Grice asks: are *xing* and *yjing* distinct senses, and is either distinct from our sense of seeing?

Grice considers (p. 250) the following as candidate necessary conditions for distinguishing the sense of *xing* from other senses:

- (a) *xing* is used to perceive a distinct group of ranges of properties of physical objects, for example, a group such as colour, shape and size (the *property condition*)
- (b) The experience of *xing* has a special introspectable character (the *introspectable-character condition*)
- (c) *xing* is receptive to a distinct sort of stimulus, for example, wavelengths of light or sound waves (the *stimulus condition*)
- (d) *xing* is associated with the workings of a distinct sort of sensory organ, for example, the workings of eyes or ears (the *sensory-organ condition*).

Grice presents these conditions as independently necessary; he seeks a set of conditions such that if *xing* is a sense distinct from *yjing*, then it satisfies at least one condition. Or, to speak in terms of identifying senses, he seeks a set of conditions such that if *xing* does not satisfy any one of the conditions, then it is the same sense as *yjing*.

On the basis of the Martian thought-experiment, Grice attempts to establish that the introspectable-character condition must figure in correct

necessary conditions, i.e., that it cannot be dispensed with in favour of one of or a combination of the other conditions. He argues as follows. Because of the similarities among *xing*, *yíng* and human vision, the property, stimulus and sensory-organ conditions are not satisfied. Thus from the standpoint of these three conditions, *xing*, *yíng* and human vision are found to be the same sense. However, if we could somehow determine that *xing*, *yíng* and human vision are distinct senses, then we could demonstrate that these three conditions do not provide correct necessary conditions for distinguishing senses.

How could we determine this? Grice claims that we must ask a Martian about its experience. He suggests that if we were to ask a Martian whether *xing* something to be blue was like *yíng* it to be blue, and the Martian responded 'There is all the difference in the world' between these experiences, then we would conclude that *xing* and *yíng* are distinct senses, at least one of which is distinct from our sense of seeing. Since introspectable differences between *xing* and *yíng* distinguish these senses, the introspectable-character condition cannot be dispensed with in correct necessary conditions.⁷

Thus according to Grice this case indicates that, contrary to intentionalism, there is a qualitative aspect of perceptual experience which cannot be identified with the physical properties of physical objects that experience represents; for the case indicates that we cannot dispense with the introspectable-character condition in favour of the property condition, alone or in combination with the other conditions. Although Grice does not use the term '*qualia*', favouring the term 'introspectable character' throughout 'Some Remarks', and using the terms 'phenomenal character' and 'experiential flavour or quality of experience' in his 'Retrospective Epilogue', he describes ('Some Remarks', p. 261) how *xing* and *yíng* are different for the Martians in terms of considering 'whether *xing* something to be round was like *yíng* it to be round, or whether when something red blue to them this was like or unlike its *yíng* blue to them'. Following the current convention, I shall refer to such mental qualitative properties that are 'what it is like' to be conscious of colour as *qualia*.

From Grice's claim that we must appeal to differences in the *qualia* of perceptual experiences so as to distinguish senses, it follows that we must characterize perceptual experiences in terms of *qualia*. Thus Grice's visiting-Martian argument provides a basis for accepting a characterization of perceptual experience in terms of colour *qualia*, and for rejecting intentionalism. Since intentionalism denies the characterization of perceptual experience in terms of *qualia*, a defence of intentionalism must show that we need not appeal to differences in *qualia* to distinguish senses. Thus my

⁷ 'Some Remarks about the Senses', p. 261; also see Grice's 'Retrospective Epilogue', in *Studies in the Way of Words*, pp. 339–85, at p. 340.

defence of intentionalism against Grice's argument will demonstrate how the introspectable-character condition can indeed be dispensed with.

II. AN INTENTIONALIST RESPONSE

Grice offers necessary conditions for distinguishing a common-sense notion of a sense, where according to this common-sense notion a sense is a mental faculty by virtue of which we have perceptual experiences with qualitative aspects, such as perceived colours and tastes. In defending intentionalism, I accept Grice's common-sense notion of a sense. (I also accept that there is a closely related technical notion of a sense, useful in the sciences, which is of a mental faculty by virtue of which we have states that represent physical properties of physical objects but need not have a qualitative aspect at all.⁸)

My aim is to show that, so far as Grice's argument indicates, we need not account for the qualitative aspects of perceptual experiences in terms of *qualia*. Rather, we can identify them with physical properties of physical objects which experience represents. (Clearly, showing that we need not appeal to differences in *qualia* to distinguish the senses does not by itself establish that perceptual experiences do not have *qualia*. Thus my defence of intentionalism is part of a broader project which includes refutation of other arguments for the view that perceptual experiences have *qualia*, such as those that rely on the inverted spectrum thought-experiment.)

Of course experiences of the sorts classified by the various perceptual modalities typically involve attribution of properties to physical objects. Furthermore, as Grice himself admits, it is difficult to isolate a qualitative aspect of such experiences which we cannot simply identify with the properties these states attribute to physical objects. He raises (p. 259) the following point in favour of dispensing with the introspectable-character condition:

if we were asked to pay close attention, on a given occasion, to our seeing or feeling as distinct from what was being seen or felt, we should not know how to proceed; and the attempt to describe the differences between seeing and feeling seems to dissolve into a description of what we see and what we feel.

⁸ See D.H. Sanford, 'The Perception of Shape', in C. Ginet and S. Shoemaker (eds), *Knowledge and the Mind: Philosophical Essays* (Oxford UP, 1983), pp. 130–58, esp. 143–7, and Nelkin, 'Categorising the Senses', for characterizations of the senses in this technical sense. Also Keeley in 'Making Sense of the Senses' rejects as vacuous Grice's common-sense notion of a sense, and accordingly rejects Grice's characterization of the senses in terms of the qualitative aspects of experience. He offers individuation-conditions for senses in this technical sense, and focuses on applying them to non-human animals.

Nevertheless Grice attempts to demonstrate that there is a qualitative aspect of perceptual experiences, which we must account for independently of the properties these states attribute. His strategy for establishing the indispensability of the introspectable-character condition is to provide a case which allows us to prise apart the qualitative aspect of perceptual experience from the properties which experiences attribute to physical objects. He offers the visiting-Martian thought-experiment as a case; thus his argument for accepting *qualia* relies on this thought-experiment.

However, I shall contend that Grice's visiting-Martian argument does not show that experiences have *qualia*. I shall propose necessary conditions for distinguishing senses which dispense with the introspectable-character condition, and so do not appeal to *qualia*. Thus so far as Grice's argument goes, intentionalism is correct that perceptual experiences have no qualitative properties apart from those that they represent.

I propose the following as independently necessary conditions for distinguishing the sense of *xing* from other senses:

- (a') *xing* specializes in perceiving some range of properties of physical objects (for example, colour or sound) (the *modified property condition*)
- (c) *xing* is receptive to a distinct sort of stimulus (the stimulus condition)
- (d) *xing* is associated with the workings of a distinct sort of sensory organ (the sensory-organ condition).

With respect to the modified property condition, a modality specializes in perceiving a range of properties if it is the only modality by which we perceive that range.⁹ For example, each of our senses (namely touch, taste, smell, vision and hearing) specializes in perceiving at least one range of properties (hardness, flavour, odour, colour and sound respectively). Of course we sometimes say, for example, that a couch looks soft or a flower looks sweet-smelling, and these seem to be counter-examples to my claim. But in cases such as these, properties of objects perceived by different modalities are merely associated. To avoid such apparent counter-examples I shall accept a suggestion offered by Grice (pp. 251–2), and make the following clarification: 'perceiving' in the context of the modified property condition means *directly perceiving* properties of objects, where direct perception is non-inferential.

⁹ See J.W. Roxbee Cox, 'Distinguishing the Senses', *Mind*, 79 (1970), pp. 530–50, at pp. 537–40, and R. Sorabji, 'Aristotle on Demarcating the Five Senses', *Philosophical Review*, 80 (1971), pp. 55–79, at p. 60, for similar modifications to Grice's property condition. However, in their discussions of Grice's conditions for distinguishing senses, neither seeks to dispense with the introspectable-character condition. By contrast, C.A.J. Coady, 'The Senses of Martians', *Philosophical Review*, 83 (1974), pp. 107–25, attempts to dispense with this, but not through modifying Grice's property condition.

Direct perception is non-inferential in the following sense: perception of property P_1 is direct so long as it is not epistemically mediated by perception of some other property P_2 , i.e., if we do not infer that something has P_1 on the basis of its having P_2 .¹⁰ The examples I gave of indirect perception are that the couch looks soft and the flower looks sweet-smelling. In these examples, we infer that the couch is soft on the basis of visual properties which are associated with softness, and we infer that the flower is sweet-smelling on the basis of visual properties which are associated with being sweet-smelling.

But certainly inference in such cases need not be reflective – it may become unreflective because of the strength of association. So *indirect* perception can be non-inferential, if by ‘non-inferential’ we mean that there is no reflective inference; that the couch looks soft can become non-inferential in this sense.

Furthermore, this notion of direct perception is useful in addressing counter-examples which, at least on their faces, seem more challenging. So, for example, a tactile–visual substitution system (TVSS) is a prosthetic vision device for the blind. A TVSS consists of a video camera worn on the head; video images are converted into a tactual pattern by a two-dimensional array of tactile stimulators (vibrating pins) worn on the back.¹¹ It may seem that use of a TVSS is a kind of vision without colour.

But while use of a TVSS detects properties usually detected by vision, namely, spatial properties at a distance, and while its use can provide this information without reflective inference after a period of training, still its use is not a kind of vision because it is not a kind of direct perception. Rather, tactual properties are used as a basis from which to infer spatial properties.

However, one may cast doubt on use of the modified property condition in distinguishing senses by asserting that cases of interaction among senses indicate that senses in fact do not specialize in perceiving some range of properties. A striking case is that of the interaction between taste and smell. Smell is required to perceive many differences in flavour. So, for example, without smell, the flavour of a raw apple is similar to the flavour of a raw potato – somewhat sweet. This suggests that we cannot characterize flavour independently of smell, and thus that we cannot differentiate taste by its specialization in perceiving flavour.

¹⁰ Direct perception is sensory representation of the sort that Dretske, *Naturalizing the Mind*, pp. 8–10, calls non-epistemic perception, and which R. Chisholm, *Perceiving: a Philosophical Study* (Cornell UP, 1957), ch. 4, has pointed out in terms of the non-comparative sense of ‘looks’, and F. Jackson, *Perception: a Representative Theory* (Cambridge UP, 1977), ch. 2, has pointed out in terms of the phenomenal sense of ‘looks’.

¹¹ See P. Bach-y-Rita, *Brain Mechanisms in Sensory Substitution* (New York: Academic Press, 1972), for a discussion of the development of TVSS.

I can approach this problem in two ways. The first is to maintain that, despite the interaction, we can characterize flavour independently of smell, and so to hold that flavour and odour are distinct properties. Thus flavour (e.g., a sweet flavour) is not perceptible by smell, and odour (e.g., a sweet odour) is not perceptible by taste. Accordingly, the interaction between taste and smell is between separate senses distinguished on the basis of flavour and odour. While this interaction is interesting, it is not important to a proposal about distinguishing senses.

The second approach is to claim that we cannot characterize flavour independently of smell, and to conclude that flavour and odour are not distinct properties. Thus flavour (e.g., a sweet flavour) is perceptible by smell, and so is perceptible by more than one modality. 'Smells sweet and tastes sweet' is thus just like 'looks square and feels square'. In this case we would reject the distinction between taste and smell. While this approach involves a revision of the standard enumeration of our senses, the revision is not extremely jarring, for obviously taste and smell are closely related.

It is difficult to determine which of these approaches to take, just because we do not know much about taste and smell properties – that is, the chemicals that are perceived.¹² In any event, what determines which of these approaches is best is provided by our answer to the question of whether or not flavour and odour are distinct properties, that is, whether or not taste and smell specialize in perceiving a distinct range of properties. And that this answer is what is determining shows the usefulness of the modified property condition.

However, a rare condition called synaesthesia suggests an interaction among senses which is so extreme as to undermine use of the modified property condition. For those with synaesthesia, a property characteristic of one modality produces experiences in more than one modality – so, for example, a sound produces a colour image as well as an auditory experience. Little is currently known about synaesthesia. But it is sometimes described as involving, for example, seeing sounds or hearing colours.¹³ If such perceptual experiences occur, senses do not specialize in perceiving a distinctive range of properties. The properties supposedly distinctive of each of the senses can be directly perceived by the other senses.

¹² See J. Dodd and V.F. Castellucci, 'Smell and Taste: the Chemical Senses', in E.R. Kandel *et al.* (eds), *Principles of Neural Science*, 3rd edn (New York: Elsevier, 1991), pp. 467–80, and A. Clark, *Sensory Qualities* (Oxford: Clarendon Press, 1993), p. 143, for some description of what little we do know about smell and taste properties.

¹³ See, for example, R. Cytowic's description in his 'Synaesthesia: Phenomenology and Neuropsychology', *Psyche*, 2 (1995), repr. in S. Baron-Cohen and J.E. Harrison (eds), *Synaesthesia: Classic and Contemporary Readings* (Oxford: Blackwell, 1997), pp. 17–39. Page numbers refer to the reprint.

Yet although synaesthesia is sometimes described as involving perceptual experiences characterized as seeing sounds, the connection between, for example, sound and colour may be merely due to association rather than direct perception: that is, it may be that a sound merely becomes associated with a certain colour image, rather than that the sound is directly perceived as a certain colour. Cytowic (p. 26) states ‘two individuals with the same sensory pairings [e.g., sound stimuli and colour synaesthetic response] do not report identical, or even similar, synaesthetic responses.... Scriabin and Rimsky-Korsakov, for example, disagreed on the colour of given notes and musical keys.’ This sort of idiosyncratic pairing of sound and colour suggests mere association rather than direct perception. Thus I maintain that our current murky understanding of synaesthesia does not provide any adequate basis for rejecting use of the modified property condition in distinguishing senses.

III. DOUBLE DETERMINACY AND THE COIN-COMPARISON CASE

However, the modified property condition is only one of a number of independently necessary conditions for distinguishing senses, since there are cases where we distinguish senses, although not on the basis of properties such as hardness and colour. Grice (‘Some Remarks’, pp. 252–5) describes a case: suppose we compare two coins with respect to size, a property which is, as Grice says, *doubly determinable*, that is, perceptible by more than one modality. As it happens, when we make the comparison, one coin looks bigger than the other, but they feel the same size. Thus in perceiving the coins we perceive them as having two conflicting size-properties (being different sizes, and being the same size), as well as colour and hardness, all at the same time.

How do we distinguish vision and touch in this case? For example, how do we determine whether our perception of the coins as being the same size is visual or tactual? Were we to perceive the coins’ sizes by just one modality, then perception of colour or hardness, distinguishing properties of vision and touch, tell us which modality is used. Nevertheless in the coin-comparison case, since we perceive the coins’ sizes by two modalities, the modified property condition does not help. For while we perceive the coins’ colour and hardness, the problem is to *relate* colour and hardness to the two conflicting size-properties. In our perception, it is obvious that hardness is related to the property of being the same size. But how do we establish this relation?

The problem, more generally, is this: how do we correlate singly determinable properties with doubly determinable properties? In many cases this sort of question does not arise, because only one singly determinable property is perceived along with a doubly determinable property; thus singly and doubly determinable properties are related by default. However, in Grice's coin-comparison case the question does arise, because two singly determinable properties are perceived along with conflicting doubly determinable properties.

Furthermore, since the relations between colour and hardness and the two conflicting size-properties are obvious, we need not go through a *procedure* to establish them; for example, we need not go through a procedure involving closing our eyes to determine which size-property is associated with touch. Thus Grice's case forces us not only to describe how we establish the relations of colour and hardness with the two conflicting size-properties, but also to describe this in such a way that we can explain the obviousness of these relations.

Clearly in providing such a description we must appeal to some aspect of perception. The question is: must we appeal to non-inferential access to *qualia* distinctive of vision and touch? If so, we relate hardness with the property of being the same size because our perception of this size-property has a *quale* distinctive of touch.

Alternatively, however, non-inferential access to some other aspect of the causal relation of perceiving might serve just as well. Grice himself admits that in the coin-comparison case we can explain why it is obvious which modality is used, without appeal to *qualia*. Rather, he claims (p. 260) that some other aspect of the causal relation of perceiving, in particular, the use of sensory organs receptive to a certain sort of stimulus, will indeed serve just as well. For it is obvious to us which sensory organ we use to perceive a particular property, doubly determinable or not. If size is perceived by way of eyes and light, it is obvious that it is perceived visually; if size is perceived by contact with skin, it is obvious that it is perceived tactually. We do not go through a procedure to determine whether we are using our eyes or our hands to perceive size.

Yet the role of sensory organs in distinguishing senses differs from that of singly determinable properties. For the relation between sensory modalities and sensory organs is derivative from sensory organs perceiving singly determinable properties by way of a certain sort of stimulus. Thus whichever organs perceive colour by way of light are eyes, even if their structure and function are different from (normal) human eyes. So, for example, suppose that Martians land, and that Grice's description of them holds (they exercise *xing* and *yjing*, where these senses perceive colour as well as shape

and size, and are receptive to wavelengths of light), *except* with respect to their sensory organs: Martians exercise seeing by way of sensory organs that look like human eyes, and they exercise hearing by way of what look like insect antennae. It seems that we would determine that the antennae are eyes. (Since I am offering necessary, not sufficient, conditions for distinguishing senses, my proposal is not committed to holding that a difference in structure or function of organs thereby distinguishes senses.)

But we can solve the problem posed in the coin-comparison case by appeal to the sensory-organ condition even where the relation between sensory organs and modalities is derivative. Indeed, a solution which relies on a derivative relation seems best. For we do not *directly* perceive a sensory organ as being an eye, but rather infer that an organ is an eye on the basis of its directly perceiving colour by way of light. Thus we should understand the claim that we have non-inferential access to which sensory organ we use in perceiving as the claim that such access involves no reflective inference – we do not go through a procedure to determine whether we are using our eyes. Once the relation between sensory organs with modalities becomes non-reflective, we can appeal to the sensory-organ condition to solve the coin-comparison case.

Thus while Grice's coin-comparison case indicates that the modified property condition is only one of a number of independently necessary conditions for distinguishing senses, it does not show that distinguishing the senses requires an appeal to *qualia*. Rather, in the coin-comparison case, appeal to the use of sensory organs receptive to a certain sort of stimulus is all that is necessary to account for the obviousness of judgements regarding which modality is used to perceive a doubly determinable property.

However, one might object, the sensory organ and stimulus conditions cannot be so neatly distinguished from the introspectable-character condition. For perhaps a sensory organ and stimulus can serve to distinguish a sense only because of their relation with certain *qualia*. So, this objection would go, eyes and light are distinctive of vision only because they are involved in producing experiences with colour *qualia*. Of course an intentionalist will reject this appeal to *qualia*. But now the crucial question is whether Grice's visiting Martian argument provides a compelling reason in favour of this appeal, and against intentionalism.

IV. MARTIAN INTROSPECTABLE CHARACTER

Perhaps in some cases non-inferential access to *qualia* provides the only explanation of the obviousness of judgements regarding which modality is

used to perceive a doubly determinable property. The Martian thought-experiment seems to be just such a case. After all, Martian *xing* and *ying* are so similar in terms of the properties they perceive, of stimuli, and of the look and function of sensory organs, that it seems we must explain in terms of non-inferential access to *qualia* why it is obvious to Martians which sense they are using. How else could we explain this?

However, Grice's visiting-Martian argument does not defeat my proposal. So far as Grice has shown, even though Martians identify colours by *xing* as well as *ying*, nevertheless there are other ranges of properties which *xing* and *ying* specialize in perceiving.

Why does the Martians' reference to the qualitative difference between *xing* and *ying* seem to require an appeal to *qualia*? Since we distinguish our senses on the basis of properties of objects (such as colour and hardness) to which we have non-inferential access by direct perception, we attempt to distinguish Martian senses in the same way. However, *ex hypothesi*, there are no such properties – that is, none to which *we* have non-inferential access by direct perception – which distinguish *xing* and *ying*. Because of this, it is easy to ignore the possibility that the Martians directly perceive ranges of properties different from those we perceive, and that there are ranges of properties which *xing* and *ying* specialize in perceiving. If one ignores this possibility, it seems that the only difference between *xing* and *ying* to which the Martians would have non-inferential access is a difference in *qualia*.

However, it may be that the Martians directly perceive different ranges of properties of objects. Consequently, although it is obvious to Martians when they are *xing* as opposed to *ying* blue, we need not explain this obviousness on the basis of non-inferential access to *qualia*. Setting aside a coin-comparison type of case, we can explain this obviousness in terms of their direct perception of properties that distinguish *xing* and *ying* – just as we can explain why it is obvious to us when we are seeing rather than feeling size in terms of *our* direct perception of colour and hardness.

Against my proposal, Grice would object (p. 255) 'It is far from clear to me that it is inconceivable that just the same set of generic properties should be detectable by either one of two different senses'. However, to use the case of the visiting Martians against intentionalism, one must provide some reason for accepting the claim that it is possible that *xing* and *ying* perceive the same ranges of properties.

It is important to examine further the possibility we are supposed to be considering. If Martian *xing* and *ying* were to perceive the same ranges of properties, then all the properties perceived by *xing* and *ying* would be doubly determinable. That is, any property that Martians would directly

perceive by *xing* they also would directly perceive by *ying*. Thus although the *qualia* of *xing* are claimed to be distinct from those of *ying*, this difference in *qualia* between *xing* and *ying* would not be associated with a difference in ranges of the properties which experiences attribute to objects.

But in order to provide a reason for accepting the claim that it is possible that *xing* and *ying* perceive the same ranges of properties, one must at least offer some non-tendentious example of a qualitative difference between modalities which is not associated with a difference in ranges of the properties which experiences attribute to objects. Without some such example, it is not even clear what is meant by such qualitative differences. Yet Grice offers no example. And despite Block's recent contention that there are such qualitative differences among perceptual modalities, the intentionalist can easily controvert his example. Block states ('Mental Paint and Mental Latex', p. 28)

when we have both auditory and visual representations as of something moving, there are experiential but non-representational differences between these representations in different sensory modalities. A light flashes in one modality, a horn blows in another.

But the intentionalist accounts for the qualitative difference between a light flashing and a horn blowing in terms of colours and sounds, understood as physical properties of physical objects which experience represents.

Grice attempts to establish that the introspectable-character condition is indispensable by providing a case where we must account for the qualitative aspect of experience in terms of introspectable character alone, independently of the properties which perceptual experiences attribute to physical objects. He considers cases where we claim that senses are distinct, but it seems that the only way to draw the distinction is on the basis of *qualia*. The coin-comparison case is not decisive, because the distinction between seeing and feeling in this case may be founded on non-inferential access to the use of sensory organs receptive to a certain sort of stimulus.

However, Grice claims that the only way to distinguish between Martian *xing* and *ying* is in terms of *qualia*. In response, I have posed a dilemma: either we can understand the qualitative difference between *xing* and *ying* in terms of direct perception of different ranges of properties, or we cannot understand this qualitative difference at all. Grice claims, plausibly, that the qualitative difference between *xing* and *ying* is sufficient for distinguishing senses. But this claim is clearly compatible with intentionalism. Rather, Grice's argument supporting *qualia* must also contend that *xing* and *ying* perceive the same ranges of properties of physical objects; it is at this point that his argument faces my dilemma.

V. CHARACTERIZING DISTINCTIVE PROPERTIES

Still, I have not confronted a fundamental question: how do we characterize the properties that are relevant for the modified property condition? I have only partially addressed this question by the claim that the relevant properties are directly perceived.

I have claimed that differentiation of the senses need not appeal to introspectable character of a sort incompatible with intentionalism. And, in particular, I have claimed that we can distinguish senses in terms of a number of conditions, including the modified property condition. But my claim would be undermined if it turned out that the properties relevant for the modified property condition must themselves be identified in terms of introspectable character. Grice states (p. 267)

the way to describe our visual experiences is in terms of how things look to us, and such a description obviously involves the employment of property-words. But in addition to the specific differences between visual experiences, signalized by the various property-words employed, there is a generic resemblance signalized by the use of the word 'look', which differentiates visual from non-visual sense-experience. This resemblance can be noticed and labelled, but perhaps not further described.

Furthermore, Grice claims that we must account for this generic resemblance in terms of introspectable character.

Grice's claim seems to be that although particular visual experiences may be differentiated with respect to determinate colours, determinate (chromatic and achromatic) colours have a generic resemblance. If, as Grice suggests, we must account for this generic resemblance among determinate colours in terms of the introspectable character distinctive of vision, differentiation of vision in terms of colour does appeal to introspectable character. This consideration could be employed in favour of one dispositionalist view which holds that colours are dispositions to produce visual experience with colour *qualia*. In his 'Retrospective Epilogue' (p. 343), Grice suggests that he supports this kind of dispositionalism about the nature of colour, along with a distinction between colours as secondary qualities (which are in part constituted by perceivers' mental responses) and shapes as primary qualities (which are not at all constituted by perceivers' mental responses).

But, contrary to this suggestion, we can account for the generic resemblance among determinate colours, as well as the determinate colours themselves, in terms of the physical properties that colour experience represents. For we can characterize this generic resemblance in terms of being located in a certain *psychological quality space*, namely, the psychological colour space.

The psychological colour space is a three-dimensional space with dimensions of hue, saturation and brightness. Every determinate shade of colour is represented by a point in the colour space. Also, relations of qualitative similarity and difference are represented by distances in the space: for example, that red is qualitatively more similar to orange than blue is represented by red's being closer to orange than blue. Being located in the psychological colour space captures the generic resemblance among determinate colours in that every determinate colour can be related to every other by way of a route through the space; thus there is a route through the space from vermilion to dark grey. Moreover, the psychological colour space distinguishes the generic resemblance among determinate colours from that among, for instance, sounds, in that there is no route through the colour space from vermilion to, say, C sharp.¹⁴

According to intentionalism, the colour space represents qualitative relations among physical qualitative properties. Thus according to intentionalism, we can characterize the generic resemblance among colours in terms of relations among physical qualitative properties, without appeal to colour *qualia*.

Against this interpretation of the colour space, Hardin and McGilvray object that the properties with which it proposes to identify the colours represented in the space – reflectance properties in the case of experiences of surface colours – in no way correspond with and cannot explain the qualitative similarity relations represented by the psychological colour space.¹⁵ Rather, an aspect of experiences themselves corresponds with and explains the qualitative similarity relations. Moreover, according to this objection, we must identify colours with a range of properties that corresponds with and explains the qualitative similarity relations, and consequently we must identify colours with an aspect of experiences themselves. Thus, it seems, a characterization of colour must appeal to *qualia* after all.

However, the claim that an aspect of experiences themselves explains qualitative similarity relations does not by itself show that colour experiences have mental qualitative properties which cannot be explained in terms of causal relations. Rather, Hardin and McGilvray reject *qualia*, and claim that neurally realized internal functional processes of our visual system correspond with and explain the qualitative similarity relations.

¹⁴ For more about how to characterize routes through a psychological quality space, see Clark, *Sensory Qualities*, ch. 4; see ch. 5 for the application of this characterization of psychological quality spaces to the issue of differentiating the senses.

¹⁵ Hardin, *Color for Philosophers*, p. 7 and p. 66; McGilvray, 'Constant Colors in the Head', pp. 202–3.

Furthermore, the claim that mental processes correspond with and explain the qualitative similarity relations is consistent with intentionalism, which claims that colour experiences have no qualitative properties apart from the physical properties of the physical objects which they represent. For the intentionalist can admit that internal functional processes correspond with and explain the qualitative similarity relations. The intentionalist merely claims that we should not identify colours with these internal processes. Rather, the intentionalist maintains, these internal processes merely provide perceptual access to colours, which are external properties; accordingly these internal processes are an aspect of the epistemology of colour and not of its metaphysics.¹⁶

This intentionalist characterization of the psychological colour space can be generalized to provide a characterization of the properties relevant for the modified property condition. Such properties are the determinable properties whose ranges of determinates are represented in the various psychological quality spaces, for example, the quality spaces for flavour, odour, colour and sound.¹⁷ As with the colour space, while it may be that an aspect of experiences themselves explains the qualitative similarity relations represented by these quality spaces, this does not show that perceptual experiences have *qualia*. For again it may be that such aspects of experiences are neurally realized internal functional processes. Furthermore, explanations of qualitative similarity relations in terms of internal processes are consistent with intentionalism so long as we do not identify perceived properties with these internal processes. Rather, internal processes merely provide perceptual access to perceived properties, which are external properties of physical objects.

Thus an appeal to colour *qualia* must be founded on more than the mere recognition of the generic resemblance among determinate colours; other considerations must enter. Of course, other considerations supporting *qualia*, for example, those concerning the possibility of an inverted spectrum, can enter here. However, setting such arguments aside, my claim is that Grice has provided no new support for *qualia* on the basis of his argument regarding distinguishing the senses.

¹⁶ I develop this defence of intentionalism in my 'The Relativity of Color', *Synthese*, 123 (2000), pp. 105–29, and 'The Location Problem for Color Subjectivism', *Consciousness and Cognition*, 10 (2001), pp. 42–58.

¹⁷ See Clark, *Sensory Qualities*, ch. 5, for a helpful discussion of psychological quality spaces. Since, as Grice (p. 249) notes, touch specializes in more than one range of properties, for example, warmth as well as hardness, there is no single psychological quality space associated with touch. (Again because I am offering necessary, not sufficient, conditions for distinguishing senses, I avoid the question of whether, if touch specializes in more than one range of properties, it should therefore be divided into multiple senses.)

So far as Grice has shown, the qualitative aspect of perceptual experience can be identified with the physical properties of physical objects which experience represents. In this case, necessary conditions for distinguishing senses can dispense with the introspectable-character condition, and with regard to this objection intentionalism remains tenable.¹⁸

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¹⁸ I owe thanks to David M. Rosenthal, Arnold Koslow, Adam Vinueza, Ram Neta, Saul Fisher, Glenn Hartz, Brian Keeley, Jonathan Cohen, David Hilbert and Kent Bach for helpful comments on this paper. Versions were presented at the 2000 APA Central Division meeting in Chicago and the 2000 annual meeting of the Society for Philosophy and Psychology in New York; I owe thanks to Deborah K. Heikes and David H. Sanford for insightful and helpful comments at those events.