Synthese (2021) 199:14063–14085
https://doi.org/10.1007/s11229-021-03410-2

ORIGINAL RESEARCH

Perceptual capacities, discrimination, and the senses

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Received: 15 October 2020 / Accepted: 8 September 2021 / Published online: 25 September 2021

Abstract
In this paper, I defend a new theory of the nature and individuation of perceptual capacities. I argue that we need a theory of perceptual capacities to explain modal facts about what sorts of perceptual phenomenal states one can be in. I defend my view by arguing for three adequacy constraints on a theory of perceptual capacities: perceptual capacities must be individuated at least partly in terms of their place in a hierarchy of capacities, where these capacities include the senses themselves; an adequate account of perceptual capacities must be sensitive to empirical considerations; and an adequate account should accommodate the nature of the capacity to perceive. I arrive at these constraints by considering how Schellenberg's view fails, before defending and developing my alternative in line with the constraints. I defend a view on which there are few, coarse-grained perceptual capacities which can fulfil complex explanatory roles because they are evaluatively gradable on many axes. Finally, on my view, perceptual capacities bear a particularly close relation to the sensory modalities themselves.

Keywords Perceptual capacities · The senses · Perceptual experience · Molyneux's Question · Perceptual discrimination

In the philosophy of mind, the notions of capacity and ability have recently been asked to do substantive philosophical work. This is particularly evident in the philosophy of action, where there has been a flurry of work on whether agentive abilities are dispositions (Vetter, 2019), how to account for the normativity of agentive capacities (Douskos, 2019), and on the relation between abilities and freedom (Vihvelin, 2013). Similarly, capacities have been at the centre of debates in epistemology for some time. One tradition, exemplified by Ernest Sosa (2007) and John Greco (2007), aims to provide an account of knowledge in terms the successful and reliable exercise of epistemic abilities. It is perhaps not surprising, then, that in recent years, philosophers of perception have also begun to turn their attention to accounting for perceptual

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capacities (Hyman, 1994; Kalderon, 2018; Millar, 2019). The most extensive treatment to date is Susanna Schellenberg's account of the nature, function, and possession conditions of perceptual capacities, which she puts to work in debates about perceptual consciousness, content, and knowledge (Schellenberg, 2018, 2019a, 2019b, 2020). One thing which unites all of these otherwise disparate discussions is the thought that capacities can be used to *explain* a wide variety of phenomena, from skilled action and free will, to the possibility of knowledge, to the nature of perceptual experience.

In this paper, I argue for a view of perceptual capacities. It is a view of their individuation and of what they are capacities to do; of their number and nature. Central to the account is the idea that they have an explanatory role in theorising about perception. I will argue for my view by way of considering and rejecting some key features of Schellenberg's conception of perceptual capacities. The reason for this is that the ways Schellenberg's view fails are instructive, since they provide us with some important adequacy constraints on a theory of perceptual capacities which are perhaps at first not easy to see. Once we have the constraints in hand, it will be easier to make out the shape a view of perceptual capacities should take.

The paper is structured as follows. In Sect. 1, I motivate the need for a view of perceptual capacities, focussing on their explanatory roles. I also show one way of fleshing out a view based on these motivations by describing Schellenberg's view. The next two sections focus on criticising different aspects of Schellenberg's view in order to derive some constraints on an adequate theory. Firstly, in Sect. 2, I argue that Schellenberg's view cannot accommodate the relations between the senses, and in particular provides the wrong *sort* of answer to Molyneux's Question about whether a person born blind could, if made sighted, visually discriminate cubes from spheres. Secondly, in Sect. 3, I argue that Schellenberg's view cannot account for the capacity to perceive. With my constraints in hand, in Sect. 4, I develop and defend an alternative conception of perceptual capacities, showing both that it meets the constraints and the explanatory ambitions of a theory of perceptual capacities. In Sect. 5, I show that it can withstand some important objections.

1 Perceptual Capacities

1.1 Why Capacities?

We have a wide range of capacities and abilities. Some of these are agentive, like the capacity to ride a bike, or to play tennis. Some of them are epistemic, like the capacity to tell good evidence from bad. There also seem to be some clearly perceptual ones, such as the capacity to visually tell the colours of things, to discriminate different pitches, and to feel how rough or soft a surface is.

That there are perceptual capacities seems sufficient to make them fodder for philosophical questions: what exactly *are* they; how many are there, and how do we individuate them; what is their function? After all, simply trying to say what agentive abilities are has raised difficult and wide-ranging issues for philosophers of action, which have contributed to our understanding of agency (Douskos, 2019; Mele, 2017; Small, 2017; Vetter, 2019).

However, there are motivations other than curiosity. In particular, there is the thought that capacities play an important explanatory role in theories of action, knowledge, and perception. This is clear enough if we look at some examples. Greco (2007) has argued that if knowledge is the successful exercise of epistemic abilities, and we value successful exercises of abilities over lucky flukes, then epistemic abilities help explain why knowledge is valuable. And Christos Douskos (2019) has recently argued that an agents' skills and capacities can figure in explanations both of *how* an agent goes about performing a complex series of actions, and *why* they take those means given their end. Both have argued that these facts require certain conceptions of epistemic and agentive capacities, respectively. Whether or not these views are right, the idea that capacities might be used in rich explanations of mental phenomena, and that what we say about these capacities depends on what they are needed to explain, are clearly attractive and plausible. Call these sorts of explanatory motivations 'local', since they are motives for defending views of capacities which depend on the explanatory concerns local to a particular discipline, epistemology or action theory, say.

There is also a global explanatory motivation for providing an account of agentive, epistemic, and perceptual capacities. The motivation is that capacities are needed to explain how it is possible for someone to do something or be in some state, for example, how it is possible that some can play tennis and others cannot, or that Jane knows that *p* but Jill doesn't. The thought, which goes back to Aristotle (2007), is that capacities help explain how such things are possible by providing a kind of modal ground for them, what Barbara Vetter calls a "localized modality" (Vetter, 2015, p. 2). Why can Alice ride a bike but Bert cannot? Because Alice has a capacity which Bert lacks, and Alice's having that capacity is what explains why it is true of Alice, even when she is not riding a bike, that she *can* or *could* ride one. Capacities are necessary conditions on anyone's being reliably able to do, know, or perceive anything. Therefore, if we are to properly understand action, knowledge, or perception, we need an account of the capacities which make them possible. What is their nature and function, and how do they interact? Without answers to these questions, we will not have a full picture of the phenomena we want to understand.[1]

What of perceptual capacities? Given the foregoing, we have a global motive to account for them, since we need to explain why it is true that some people can perceive and others cannot, and why it is true of someone who is asleep that they can or could perceive when they wake. But what are the local demands imposed by the perceptual domain in particular? There are two interests which might shape how we approach perceptual capacities. On the one hand, we may have epistemic interests, since perceptual capacities plausibly play a role in explaining what perceivers can know. On the other hand, perceptual capacities may figure in an account of how it is possible to be in certain perceptual phenomenal states, such as my having the tactual

[1] The global and local motivations interact. Although the global motivation makes it something of a requirement of any domain that it explain the possibility of some features of the domain in terms of some capacities, the local motivations push us, within a domain, towards characterisations of those capacities which are particularly germane to the local explanatory demands. Therefore, we should not expect that all abilities and capacities should be given the same account—the local explanatory needs determine the shape of accounts of capacities, be they agentive, epistemic, or perceptual.

experience of the smooth, warm mug of tea, or my visual experience of the blue sky partially covered by cloud.

Now, although the epistemic interests are perfectly legitimate and may shape a final account of perceptual capacities, in this paper, I want to put them to one side and focus on the phenomenal.[2] This is because it seems to me that what is distinctive about perception is that it is a mode of conscious acquaintance with the world, and so an interest in capacities that are distinctively *perceptual* invites us to be guided by an interest in accounting for perceptual consciousness. Equally, it seems that the epistemic role of perception is at least partly due to the fact that perception manifests in conscious experiences with distinctive phenomenal characters. How do I know that the cardinal is red? At least in part because that's how it phenomenally looks to me. So by focussing on the phenomenal features of perception in developing an account of perceptual capacities, I do not deny that they may also help explain epistemic features. I just claim that, plausibly, those epistemic features partly depend on the phenomenal ones.[3]

So the explanatory role of perceptual capacities that I aim to capture is how they make it possible for subjects to be in phenomenal perceptual states. However, one may worry that perceptual capacities cannot discharge this role, whatever account we give of them. After all, explanations invoking capacities can seem rather thin, if not trivial. If one wants to know why Alice can see and Bert cannot, it is not very informative to be told that Alice has the capacity to see which Bert lacks. Moreover, even if we accept that this *is* an explanation of sorts, it is far less substantive than one which tells us how Alice's functioning visual system supports her seeing, and which also tells us how, why, and which bit of Bert's visual system is not functioning properly. So even if a difference in their capacities gives us *some* explanation, it is not as good as the explanation in terms of the categorical basis of the capacity. Therefore we should not worry too hard about perceptual capacities, because their explanatory contribution is pretty slim.

However, I think this underestimates the explanatory contribution of capacities. Firstly, it should be noted that part of the import of explanations which appeal to a capacity's categorical basis—the properties in virtue of which someone has the capacity—is that it tells us how *the capacity* is affected. The fact that Bert's visual system is damaged is part of the explanation for why his capacity to see is damaged, and they are both thereby implicated in the explanation of why Bert lacks visual experiences of his environment. So it is not the case that explanations in terms of a capacity's categorical basis supersede or overshadow those in terms of the capacity; part of why they make sense at all is that they are connected with capacity-explanations.

Secondly, explanations citing capacities tell us that the source of someone's success or failure at a task is due to their intrinsic make-up rather than the circumstances they find themselves in.[4] If Mary only fails to see red things because she happens to live in

[2] Alan Millar (2008, 2019) and John McDowell (2011) both seem to take the epistemic *explanandum* to be primary.

[3] In this respect, I agree with Schellenberg, who develops her view of perceptual capacities primarily with phenomenal character in mind, and then uses her results to account for the epistemic force of perception. Cf. Smithies (2019).

[4] Here, I am adapting some points of Barbara Vetter's at Vetter (2015, pp. 87–90).

her black and white lab, that is a very different sort of explanation than one in terms of Mary's not having the capacity to see red. This is partly because the latter appeals to Mary's intrinsic properties and the former appeals to her environmental location, but also because the two have different modal commitments. The former explanation of failure is committed to the claim that if Mary were lucky enough to leave her lab, she may merrily see the colour of a red apple. The latter entails that even if Mary were standing in front of a red apple with her eyes open, she would not be able to see its colour. Now, the capacity-explanation also indicates that if we look closely at Mary's internal make-up, we will find facts about her visual system which explain *why* she lacks the capacity see red. But that does not mean that we should ignore the capacity-explanation in favour of this lower-level one. Compare this situation with a familiar issue about mental states. Even if Jane's being in pain is fully dependent on her physically implemented cognitive systems, the fact that she is in pain is still a powerful explanation of why she takes painkillers. Jane's pain is explanatorily powerful even though it depends on the operation of systems which subserve it. The same goes for capacities.[5]

Given these motivations for accounting for perceptual capacities, what might a theory of those capacities look like? To see this, I will turn to Schellenberg's recent work, since it provides an incredibly detailed picture of the function, individuation, and possession conditions of perceptual capacities which aims to give them a privileged explanatory role. It is also by considering why Schellenberg's view is unsuccessful in Sects. 2 and 3 that I will develop my alternative.

1.2 Schellenberg On Perceptual Capacities

Schellenberg agrees that we need perceptual capacities to play a role in explaining certain facts about perceptual consciousness. She is particularly concerned with phenomenal discrimination because she takes it to be fundamental to perceiving—"it is unclear what it would be to perceive a particular without at the very least discriminating and singling it out from its surround" (Schellenberg, 2018, p. 25). In fact, Schellenberg thinks that perception is constitutively a matter of perceptually selecting and "registering the differences between things" (Schellenberg, 2018, pp. 37–38). Since she thinks that perceptual capacities have the explanatory job of helping account for the variety of perceptual discriminations we can make, Schellenberg sees perceptual discriminations as manifestations of perceptual discriminatory capacities.

Because of this, Schellenberg thinks that perceptual capacities are individuated according to the things they function to select and discriminate.[6] Therefore, if a capacity functions to select and discriminate redness, then it is C_{RED}; if it functions

[5] A different response to a related worry is given in Millar (2008, p. 336).

[6] I am leaving aside the fact that Schellenberg's formulation of her *Individuation Condition* individuates capacities in terms of the mind-independent *particulars* they function to select and discriminate, where this is supposed to include property-instances, or tropes—qualitative particulars with spatio-temporal locations such as *this rose's redness* (Schellenberg, 2018, pp. 16, 38–39, 67). I leave this aside because it introduces complications which are not relevant to my discussion and rejection of Schellenberg's view about the individuation of perceptual capacities. For criticism of her official *Individuation Condition*, see (Byrne, 2019).

to discriminate lengths, it is C_{LENTH}. Schellenberg exploits the notion of a capacity's function to account for illusions and hallucinations, treating them as cases of a capacity misfiring and not fulfilling its function. So, if C_{RED} is employed in the visual perception of a yellow ball, then the subject will be under an illusion of the ball's being red. If the subject employs C_{BALL}, and there is no ball in the vicinity, they will be hallucinating.

Now, our perceptual discriminations can be incredibly fine-grained. When viewing a field of flowers, although some people can only discriminate the red ones from the yellow, some can discriminate the red, the yellow, *and* the scarlet, vermillion, ochre, and mustard. On Schellenberg's way of individuating capacities, for each of the different discriminations a person can make they have a distinct capacity to select and discriminate the relevant feature, the employment of which is their phenomenally selecting and discriminating it (Schellenberg, 2018, pp. 38–39). Therefore, when the more discriminating flower-observer sees the flowers, they employ six distinct perceptual capacities: one capacity to discriminate redness, one to discriminate yellowness, and one for each determinate shade of red and yellow which they discriminate.

This may be surprising. Perhaps we would not expect there to be *so* many distinct capacities. What justifies Schellenberg's inference from the complexity of perceptual discriminations to a corresponding complexity of capacities? Schellenberg herself does not say, but I suspect she is motivated by a thought similar to a certain interpretation of J. L. Austin's idea that if S can A, then S has the ability to A (Austin, 1961, p. 175). The gloss is that, for any things, A and B, that S can do, if $A \neq B$, then S has distinct abilities to A and B.[7] In the terms of experience, for any type of phenomenal discrimination one can make, one possesses a distinct perceptual capacity to make a discrimination of that type. If that lies in the background of Schellenberg's discussion, it would explain how we end up with so many fine-grained capacities.

The view, then, is that perceptual capacities are individuated according to the perceptually discriminable properties they function to select and discriminate. I want to note three features of this account. Firstly, Schellenberg's view is apparently a priori, since she does not advert to any empirical considerations in formulating or defending it. Although it depends on a posteriori observations about the fine-ness of grain of perceptual discriminations, the individuation itself seems to derive from an argument like the 'Austinian' one above, which is a priori. Secondly, it is supposed to be necessarily true, since it gives the essence of perceptual capacities in terms of their functions. Necessarily, anything that functions to select and discriminate things in the relevant sense is a perceptual capacity. Thirdly, the view is wholly 'externalist' in that it individuates capacities in terms of *nothing other* than what they function to do (Schellenberg, 2018, pp. 38–40). There is nothing about the subject, their sensory systems, or their other perceptual capacities which figures in individuating any given capacity.

The final part of Schellenberg's view I want to introduce is her *Possession Condition*. This is a counterfactual conditional such that, for any perceptual capacity functioning to select Fs, C_F, and any subject, S:

> *Possession Condition*: S has C_F if and only if: if S were in a Good Case with respect to an F, then S would be in a position to single out and discriminate the F.

[7] I do not attribute this gloss to Austin himself.

Schellenberg does not use the 'Good Case' terminology. Instead, she packs six conditions into the antecedent of the conditional on the right-hand-side of her biconditional. I will define *S's being in a Good Case with respect to an F* as a case where *S* meets just those conditions: that (a) *S* is perceptually capable (awake, alert, unintoxicated); (b) there is no mask or fink for the capacity; (c) the situation is not 'exotic'; (d) the situation is not too dark, noisy, or generally obstructive for *S* to tell whether there is an *F* around; (e) *S*'s relevant sensory systems are functioning; (f) *S* and the *F* stand in a spatio-temporal relation that allows *S* to pick up information about *F* through the relevant sensory systems (Schellenberg, 2018, p. 40).

The conditional says that if the Good Case conditions obtain, then *S* would be in a position to select and discriminate the *F*. Schellenberg's talk of *S*'s 'being in a position to discriminate' is supposed to capture the possibility that *S* is in a Good Case, and yet fails to notice the *F* because *S*'s attention is elsewhere (Schellenberg, 2018, p. 40). So if *S* is in a Good Case and attends, then *S* would in fact discriminate the *F*. The *Possession Condition* therefore states that, if *S* would be in a position to discriminate an *F* (that is, would discriminate an *F* if they attended) were they in a Good Case with respect to it, then that is necessary and sufficient for *S* to possess C_F.

This is Schellenberg's view, in outline. It provides us with a very substantial, fleshed-out way of meeting the local explanatory demands of a theory of perception. This gives us a sense of what a theory of perceptual capacities which meets the explanatory demands may look like: it articulates individuation and possession conditions, and it aims to explain the possibility of perceivers being in a variety of perceptual phenomenal states in terms of the employments of capacities that meet those conditions.

However, I think Schellenberg's view is quite mistaken in a number of important ways and, in the next two sections, I aim to show what is wrong with it. But these sections do not just serve a critical purpose, for they also aim to derive a number of key constraints on a theory of perceptual capacities from the ways that Schellenberg's view fails. Therefore, they will be the building blocks for me to develop and defend a new conception of perceptual capacities, on which their number, nature, and function is conceived of quite differently.

2 The Senses, Molyneux's Question, and Perceptual Capacities

My first objection targets two aspects of Schellenberg's view: firstly, her 'externalist' claim that perceptual capacities can be individuated wholly in terms of what they function to do; secondly, the a priori individuation of capacities. The general worry is that these do not allow us to understand the relations between perceptual capacities and the sensory modalities; indeed, I argue that they generate serious problems about their relations. By doing so, I aim to uncover two constraints on an adequate theory: firstly, that perceptual capacities must be individuated at least partly in terms of their place in a hierarchy of capacities, where these capacities include the senses themselves; secondly, that our account of perceptual capacities must be sensitive to empirical considerations.

So, what is the problem concerning the senses? Start by noticing that, for Schellenberg, the capacity employed in selecting and discriminating cubes by touch is identical

to the capacity employed in selecting and discriminating cubes by sight. In both cases, one employs C_{CUBE}. The main difference, according to Schellenberg, is that in one case C_{CUBE} is employed 'in the visual mode' and in the other it is employed 'in the tactual mode'. She sees perceptual capacities as being *employed within* a sensory modality, as if the senses were different slots into which (some of) the very same fine-grained capacities can be inserted to generate experiences (Schellenberg, 2018, pp. 88, 97, 120). Whilst initially odd, the picture will appeal if we think—in line with Schellenberg's externalism—that we have *fully identified* the fundamental natures of perceptual capacities independently of any facts about the subject, and only afterwards think about how they may relate to the sensory modalities.

But I think there are two major problems with this view, one which is quite general, and another which has to do with Molyneux's Question. Firstly, it is plausible that, even if they function to select and discriminate the same properties, the capacity to discriminate shape tactually is different from the capacity to discriminate shape visually. This is because one can be able to discriminate shape in both ways, then become blind, thereby becoming able to only discriminate shape tactually (and vice versa, too). One excellent explanation for this would be that a subject's becoming blind involves their losing a visual capacity but retaining a tactual one. Indeed, as I mentioned in Sect. 1, part of the point of positing capacities is to provide just this sort of explanation.

However, Schellenberg cannot avail herself of this because she conceives of the contribution of sensory modalities as 'modes' in which perceptual capacities are 'employed' (Schellenberg, 2018, pp. 88, 97, 120). Therefore, she must say that the subject's perceptual capacities are unchanged by blindness. Instead, they simply become unable to employ C_{SHAPE} 'in the visual mode' due to damage to the visual system. Now, Schellenberg provides no argument for this view. Rather, it seems to be required by the externalist individuation of capacities, which itself largely seems to be supported by its *prima facie* attractiveness. But if Schellenberg's externalism leaves us unable to say that becoming blind involves losing a perceptual capacity, and we have been given no reason to believe that this is the right outcome, we should be very sceptical of her externalism. Schellenberg would have to do much more to show that this verdict regarding sight-loss is correct, especially when it flies in the face of our normal capacity-based explanations of sight-loss.

Secondly, Schellenberg is committed to an equally implausible assessment of Molyneux's Question (MQ). I will put MQ like this: if a person who was born blind and can discriminate cubes from spheres by touch were made sighted and presented with a cube and a sphere, could they visually discriminate which is the cube and which is the sphere?[8] It is a question about whether a person in these conditions would have certain visual discriminatory capacities in virtue of having certain tactual discriminatory capacities.

[8] This is a paraphrase of Molyneux's original question. It is important to distinguish it from related questions about the individuation of perceptual concepts (Hopkins, 2005; Levin, 2008), whether representations of space and time are amodal (Evans, 1985; Richardson, 2014), whether there is a difference in the phenomenal characters of shape experience in sight and touch (Campbell, 1996), and more (Matthen & Cohen, 2020). My arguments pertain only to MQ as stated; I do not address these others.

There is a lively debate about MQ, and it is considered on all sides to be an empirical question. The two competing answers are testable hypotheses subject to a posteriori observation. In fact, there is a healthy research programme amongst psychologists and neuroscientists engaged in restoring congenitally blind people's sight and running experiments to find out the answer to MQ (Held et al., 2011; Ostrovsky et al., 2009).[9] The answer to MQ should also be contingent. When we have an answer to MQ, it will advert to various neurophysiological facts about relations between streams of information processing and the sensory systems. But since we could have been wired up some other way, the answer cannot be a necessity. That is what we should expect of empirical facts about cognition. Accepting the empirical nature of MQ requires respecting its *a posteriority* and contingency.

Despite all of this, Schellenberg's view simply entails a 'yes' answer. This is because, just as the blinded person loses no capacities, the newly-sighted Molyneux Subject gains no capacities. On becoming sighted, they become able to employ their existing capacity to discriminate spheres and cubes in the visual mode. How? The most natural answer given Schellenberg's framework is that, having refurbished their visual system, Molyneux Subjects now meet the parts of the *Possession Condition* which refer to their sensory systems (parts (e) and (f) from Sect. 1). They can now be in a Good Case with respect to discriminating shapes (positioned in front of them, in good lighting conditions) at a distance, and can therefore be in a position to visually discriminate the sphere from the cube. All they have to do is pay attention. Nothing simpler.

But this should make us suspicious. If MQ is an empirical question, how can Schellenberg's view of perceptual capacities—an a priori view about the essences of certain properties—legitimately determine how we should answer it? The fact is that it cannot do so legitimately because that would fail to respect the genuinely empirical nature of MQ, on which, whatever the answer is, it must be a posteriori and contingent. And if Schellenberg's a priori view about the essences of perceptual capacities entails a 'yes' answer, the answer itself will be a priori and necessary. But this is manifestly the wrong result.

The fact that Schellenberg's view entails that the positive answer is a priori can be seen simply by noticing that all we had to do was apply her view to the case of an imagined Molyneux Subject, and see that, without any intermediate empirical steps, we derived the 'yes' answer. How can we also show that the answer is also necessary, on Schellenberg's view? First, remember that her individuation of perceptual capacities gives their nature in terms of their function, and so if a capacity functions to discriminate cubes, it has that function necessarily. Now, the *Possession Condition* on having C_{CUBE} is basically that someone has it just in case, if they are in a Good Case with respect to a cube, they are thereby in a position to discriminate the cube. So, if someone meets the *Possession Condition*, then they have C_{CUBE}, a capacity whose essence it is to discriminate cubes. Therefore, if they find themselves in a Good Case, they will necessarily be in a position to discriminate cubes, which just means that if they attend properly, they *will* discriminate the cube. So, necessarily, anyone with

[9] See Cheng (2015), Clarke (2016), Connolly (2013), Schwenkler (2012) for discussions of the empirical methodologies. The question for them is *how* to *better* test MQ, and the empirical success on which that question depends is more evidence for MQ's *a posteriority*.

C_{CUBE} who is in a Good Case with respect to a cube, and is attending sufficiently, will discriminate the cube.

Now, if a Molyneux Subject is someone who was born blind, can tactually discriminate cubes and spheres, has had their visual system repaired, and is placed in front of a cube and sphere in good lighting, with their eyes open, and so on, then we know two important things about them: firstly, they have both C_{CUBE} and C_{SPHERE}, because they can tactually discriminate cubes and spheres; secondly, they are in a Good Case for visually discriminating cubes and spheres. But from the previous line of argument, anyone with these two properties is *necessarily* in a position to discriminate the cube from the sphere by employing their existing capacities in the visual mode. So the answer to MQ is not just 'yes', not just a priori 'yes', but *necessarily* 'yes'.

It might be suggested that Schellenberg could respond by claiming that it is contingent and a posteriori whether a Molyneux Subject's sight is *fully* restored.[10] If so, then their sight may be only partially restored, such that the subject is unable to have shape-capacities employed in it. Might this provide a resource to block my argument? I do not think so. MQ is only an interesting question if we are considering subjects whose vision has been fully restored. We do not want to know whether someone born blind who is now only *partially sighted* could discriminate the sphere and the cube, because the explanation of why they fail (if they do) may just be that they still cannot see properly. The reason for requiring Molyneux Subjects to be fully sighted is therefore basically the same reason we need Molyneux Subjects to be in a well-lit room rather than in the dark. This licences using 'Molyneux Subject' to refer only to those with fully restored sight. This means that Molyneux Subjects all have fully functioning visual systems, and that their capacities are therefore employable in the visual mode. What else could it mean for their sight to have been restored, on Schellenberg's view? Therefore, even though it is contingent and a posteriori that Molyneux Subjects have their sight fully restored, it is nonetheless true that they do. This is all my argument requires.

The root cause of most of these problems for Schellenberg's view is her externalism. This is because, by leaving out reference to the senses in the individuation of perceptual capacities, her view entails the implausible claim that losing or gaining sensory modalities involves no loss or gain of capacities. Moreover, this is what guarantees the 'yes' answer to MQ, since, if perceptual capacities are modality-independent, then when the Molyneux Subject has their visual system restored they can simply employ their existing shape-discriminating capacities in the visual mode. Since these serious problems have their origin in Schellenberg's externalism, we should reject it, in favour of a view on which perceptual capacities are at least partly individuated in terms of some 'internal' factors. Indeed, since the problems come from individuating capacities in a *modality-independent* way, this indicates which internal factors individuate perceptual capacities: the senses. Therefore, if there are capacities finer-grained than the senses, then they must be identified as *visual* or *tactual* capacities which are lost when a sense is lost, and may be had if one has the relevant sense. That is, perceptual capacities must partly be individuated in terms of their place in a *hierarchy of*

[10] Thanks to an anonymous referee for suggesting this response.

capacities, amongst which we should include the sensory modalities. This is the first constraint that a theory of perceptual capacities must abide by.

Now, as is evident from my argument concerning MQ, another culprit is Schellenberg's a priori approach to individuating perceptual capacities. And this teaches us a second lesson, namely, that the way we individuate perceptual capacities must be sensitive to the empirical nature of the subject matter. Although the individuation of capacities and the explanation of modal facts about what people can do or perceive are obviously metaphysical enterprises, their subject-matter is an empirical one: the perceptual capacities of animals. So what we say about the explanation of facts about animals, and about our perceptual capacities, should be sensitive to empirical considerations, for example considerations about the relations between the senses, blindness, and MQ. Such sensitivity amounts to, at least, not ruling a priori what is in fact a posteriori. But it also requires that we assess our claims about the individuation of perceptual capacities against what we know about perception by both ordinary observation and science. What I am suggesting is a strategy of reflective equilibrium whereby our metaphysical views are kept in check by what we observationally know about perception.[11] This is the second constraint.

It is worth saying that, whereas the first constraint constrains our *theories* of perceptual capacities, the content of our views, the second is *methodological*, constraining how we go about the project of accounting for capacities. So, while the second is met by sensitivity to empirical concerns, the first is met by avoiding commitment to any thoroughgoing externalism, and is thereby an example of the local concerns of the domain of perception giving a specific shape to our theory of distinctively perceptual capacities. In Sect. 4, I will develop a view of perceptual capacities guided by both constraints. But first, I want to consider another problem with Schellenberg's view in order to uncover a third, final, constraint.

3 The Capacity to Perceive

My aim in this section is to provide a third constraint: that an account of perceptual capacities' natures must be able to account for the nature of the capacity to perceive. Once again, I will approach the constraint by seeing how Schellenberg's view fails to meet it, and why that causes problems.

Schellenberg's view is that a perceptual capacity is a capacity which functions to select and discriminate the perceptible properties of mind-independent particulars. So C_{SCARLET} has the function of selecting scarlet things and discriminating them from other things. In addition, there is C_{RED}, C_{DISTANCE}, C_{WARMTH}, etc. All of these capacities,

[11] I am not saying that empirical psychology can *just tell us* which capacities there are. Only that this bit of metaphysics should be sensitive to *constraints* placed on it by its subject matter, and that psychology is well-placed to provide us with empirical details relevant to saying which capacities there are. So the requirement is not that capacities must line up neatly with psychological kinds of processes identified by cognitive science, or even that the way we individuate the latter bears on the way we individuate the former.

though, are determinates of a maximally determinable perceptual capacity: the capacity to perceive.[12] Call this capacity 'PERCEPTION'. But how should we characterise PERCEPTION on Schellenberg's view? What is *it* a capacity to select and discriminate? What is the F such that PERCEPTION is C_F?

Perhaps PERCEPTION is the capacity to select and discriminate mind-independent particulars *tout court*, rather than red things or apples. Perhaps it is $C_{\text{MIND- INDEPENDENT- PARTICULARS}}$. But that cannot work because discrimination is *contrastive*. We can characterise C_{RED} as a capacity to discriminate red things from non-red things just because there is a class of perceivable objects which are red and class which are not. C_{RED} selects members of the red-class and discriminates them from members of the non-red class; it registers the difference between the red things and the non-red things in respect of redness. But which perceivable things could it be that PERCEPTION discriminates mind-independent particulars *from*, such that it registers the difference between mind-independent particulars and those other things?

There are three options: mind-*in*dependent *non*-particulars; mind–*de*pendent *non*-particulars; or mind-*de*pendent particulars. What about mind-independent non-particulars? Since Schellenberg's use of 'particular' is very broad, including masses like water and clay, the only candidates for mind-independent non-particulars are perhaps universals. But PERCEPTION's function is not to select mind-independent particulars and discriminate them from abstract objects. A more restricted conception of particulars would not help: there is no reason to think that PERCEPTION functions to discriminate things like apples and oranges from things like water and clay. What about mind-dependent non-particulars? Perhaps the property of *being a wedding* is a mind-dependent non-particular, and some have argued the same is true of propositional attitudes (Marcus, 2009; Steward, 1997, pp. 127–134). However, again, none of these are candidates for what PERCEPTION functions to discriminate mind-independent particulars from.

The most plausible option is that PERCEPTION discriminates mind-independent particulars from mind-*de*pendent particulars such as sensations, after-images, feelings, and other types of mental item. After all, there is reason to think that PERCEPTION's function is to solve the problem of how to form objective perceptual representations from a great variety of proximal sensory events (Burge, 2010). Perhaps this lends support to the idea that contrasting with the class of mind-independent particulars is the class of proximal sensory events, so that PERCEPTION functions to discriminate mind-independent particulars from proximal sensory events.

[12] I will be making much of the determinate-determinable distinction in this section, so it will be useful to explain it. Determination is a specification relation that holds between properties. For example, redness is a determinable of scarlet, burgundy, and ruby; they are specific, determinate, shades of red. So anything red must be either scarlet, burgundy, or some other determinate of red; if something is any of those determinate shades then it is red. If anything is red, then it is coloured, since *being red* is a determinate of *being coloured*. I will neither defend nor accept an account of the determination relation. For discussion of such accounts, see (Wilson, 2017). However, I will define a 'maximally determinable property relative to type T' as being a property of type T, which has determinates which are T, and is such that, if it has any determinables, then they are not T. For example, scarlet is a colour, and redness is a colour, but redness has no determinable which is also a colour. Therefore redness is a maximally determinable colour. Therefore, the maximally determinable perceptual capacity is a perceptual capacity which has perceptual capacities as determinates, but whose determinables are not themselves perceptual capacities.

Although this attempt is the most plausible open to Schellenberg, I think it is unsuccessful because we do not *perceive* our own after-images or feelings. They are not apt to be seen, or tactually felt, or heard, even though they are experienced; some aspects of experience do not figure as perceived objects of experience. This matters because what Schellenberg needs is a class of *perceivable* things which PERCEPTION discriminates mind-independent particulars from. She needs this because PERCEPTION is supposed to be able to *register the difference* between mind-independent particulars and the members of the contrast class. Therefore, it must take members of both classes as objects, which entails that members of both must be perceivable. But if proximal sensory events are not perceivable, they cannot form the contrast class.

Indeed, at this point, we can see an utterly general problem with the proposal that PERCEPTION is $C_{\text{MIND- INDEPENDENT- PARTICULARS}}$: if members of both classes must be perceptible for PERCEPTION to register the difference between them, then PERCEPTION must be able to select and discriminate members of *both* classes. But then it is a capacity to select and discriminate *both* mind-independent particulars *and* members of the other class, rather than a capacity to select and discriminate mind-independent particulars *in contrast* to the members of the other class. Therefore, PERCEPTION cannot be characterised as a capacity to discriminate mind-independent particulars from anything else because there is no way to say what the 'anything else' is.

Perhaps Schellenberg may argue that PERCEPTION does not function to discriminate mind-independent particulars from members of some other category, but rather *between mind-independent particulars themselves*. Perhaps employing PERCEPTION involves selecting mind-independent particulars and discriminating them from *each other*. The problem is that this gives us no substitute for 'F' in C_F. Therefore, it fails to individuate PERCEPTION according to anything distinctive which it functions to discriminate from anything else.

Given the difficulties for Schellenberg, here, we might wonder whether my demand for an account of PERCEPTION is fair. The following line of thought might recommend this attitude. Schellenberg happily distinguishes C_{SCARLET} from C_{RED} because she can give different characterisations of what they function to select and discriminate. If there is no such characterisation of a putative capacity, say, PERCEPTION, available to her, then she should not distinguish between it and any capacities that she can so characterise. But this may be because *there is nothing to distinguish between*. Because we cannot characterise it in terms of what it functions to discriminate, PERCEPTION is one perceptual capacity too far and we should avoid commitment to it. Perceptual capacities lack a determinable in PERCEPTION. However, if this is unacceptable—if I am right that we *must* characterise PERCEPTION—we must reject the premise that got us here: perceptual capacities are capacities to select and discriminate things.

But this *is* unacceptable. If perceptual capacities are not unified as determinates of a maximally determinable perceptual capacity, then they would not *be* perceptual capacities. Compare the case of colour. If redness is a maximally determinable colour that has scarlet and ruby as two determinates, then scarlet and ruby are both shades of red. But if it somehow turned out that there was no such thing as red, then scarlet and ruby could *not* be shades of red, for there would be no red for them to be shades *of*. The same goes for perceptual capacities: if capacities such as C_{RED} and C_{GREEN} lacked a shared maximally determinable perceptual capacity in PERCEPTION, they could not

all be perceptual capacities. But if this were true, then employments of distinct capacities could not be cases of perceiving, since, presumably, only the employment of a perceptual capacity could count as perceiving. This option therefore casts doubt on the very possibility of providing a theory of perception, since it effectively eliminates its subject matter. Therefore, it is not a tenable option.

Schellenberg's characterisation of perceptual capacities rules out giving a characterisation of PERCEPTION, and failing to give a characterisation of that leads to both scepticism about its existence and about the unity of perception. So, Schellenberg's view fails. But this teaches us something: both that we *must* fit PERCEPTION into our theory of perceptual capacities' natures, and that not all views are *able* to. The requirement to account for PERCEPTION is the third constraint.

4 A New Theory

I have argued that there are three constraints on the adequacy of a theory of perceptual capacities by considering the ways that Schellenberg's view fails. The three constraints are:

1. Perceptual capacities must be individuated at least partly in terms of their place in a hierarchy of capacities, where these capacities include the senses themselves;
2. An adequate account of perceptual capacities must be highly sensitive to empirical considerations;
3. An adequate account should accommodate the nature of PERCEPTION.

Further, in Sect. 1 I argued that a theory of perceptual capacities must meet both local and global explanatory demands, in particular the local demands of being able to figure in explanations of how it is possible for subjects to be in a variety of perceptual phenomenal states. In this section, I will develop a view which meets all these demands; in the next section, I will show it can withstand some important objections.

I think the way to approach the issue is by starting with the nature and function of PERCEPTION, rather than with the finer-grained-capacities Schellenberg prefers. This is because whilst I have argued that we must account for PERCEPTION, it is far less obvious that there are any such fine-grained capacities. It was something of a surprising quirk of Schellenberg's view that we ended up with so many perceptual capacities, and it is very plausible that the right view will not posit them. At least we should keep the question open for the moment, so that I can address it later. Further, addressing PERCEPTION first allows us to meet constraint (3) immediately. I will start, therefore, not from low-level visual discrimination, but with the maximally determinable perceptual capacity: PERCEPTION. What is *its* function; what are *its* deliverances?

I think the answer to this is the most simple-minded: PERCEPTION is the capacity to *perceive*; its deliverances are *perceptual experiences*. Now, this is not very informative since the simple-minded answer gives no *analysis* of PERCEPTION in terms of an analysis of what it is a capacity to do. It therefore stands in stark contrast to sophisticated views like Peter Graham's (2014), that PERCEPTION's function is to produce reliably accurate representations, and Mark Johnston's view that "the function

of sensory experience is to present truthmakers for the immediate judgments we make about the scenarios we are sensing" (Johnston, 2006, p. 279).[13]

In this context, though, I think that the simple-minded answer is preferable to sophisticated answers like Graham's and Johnston's for the simple reason that we should be able to say that PERCEPTION is a capacity to perceive without being committed to a substantive view of the exact nature of perceiving. We know enough about what perceiving is that the simple-minded answer does not leave us in the dark about the function of PERCEPTION, but it avoids committing us to views of perceiving which are really downstream of questions about PERCEPTION's function. Of course, if Johnston (say) is right about what perceiving is, then we can move from my simple-minded answer to his sophisticated answer, just because perceiving *is* the sensory presentation of truthmakers for judgements about sensed scenarios. But until the debate about the nature of perceiving is settled, there is no reason to opt for a sophisticated view. We can all agree that PERCEPTION is the capacity to perceive even if we disagree about the truth of this or that theory of perceiving.

One may worry that I have not given the *function* of PERCEPTION because I have not said anything about its value for an organism, for example, in evolutionary terms. However, accounts of PERCEPTION's function in terms its *value* or *role* are not what is at issue here. Although the function of PERCEPTION (in the sense of its value) for most animals surely lies in part in its evolutionary role in survival, we should not rule out that there could be perceivers for whom PERCEPTION's only value is aesthetic, or purely epistemic, say. So accounts of PERCEPTION's function in terms of what good it does for the perceiver, or its evolutionary role, or whatever, are not to the point. Instead, we want to know what the 'definitional act' of PERCEPTION is; what is the type of manifestation proper to it, such that we can say what counts as a defective or non-defective exercise of the capacity?[14] The answer to *this* question is that *perceiving* is PERCEPTION's definitional act. That allows us to distinguish between defective and non-defective exercises of the capacity, since perceiving is the non-defective exercise and hallucinating is a defective one.[15]

If the simple-minded view of PERCEPTION is correct, then we have already met constraint (3). And we can now build downwards from it, since, once we have that view in place, a natural way of including the sensory modalities in the account opens up. Instead of thinking of them as slots into which pre-formed, finer-grained perceptual capacities can be fitted, we can think of the senses as perceptual capacities in their own right.[16] Indeed, they are natural candidates for being the immediate determinates

[13] Johnston's claim is officially about *sensory experience*, but it easily yields a view about the function of PERCEPTION.

[14] I take myself to be adapting Helen Steward's argument at Steward (2013, pp. 687–688), from whom I have also taken the term 'definitional act'.

[15] Illusions complicate things because, in one sense, they are non-defective exercises of PERCEPTION which involve perceiving; in another sense, they are defective because they are non-veridical. But this need not concern us here. For relevant discussions, see Byrne and Logue (2008), Pautz (2010), and Snowdon (2008).

[16] There is a distinction between the senses considered as capacities and the senses considered as biologically realised systems or organs. These systems and organs are the physical systems in virtue of which an animal has SIGHT etc., just as legs and a functioning motor system underlie the capacity to walk. When I use 'the senses' or 'SIGHT', I am referring to capacities, not sensory systems or organs.

of PERCEPTION. So, PERCEPTION's immediate determinates are SIGHT, TOUCH, AUDITION, TASTE, and SMELL.[17] And we can simply re-deploy the strategy for determining PERCEPTION's function for the senses: the function of SIGHT is to see; the function of AUDITION is to hear, and so on (Kalderon, 2018).

This view has three distinct advantages. Firstly, it accords with an intuitive view of phenomena such as blindness. When someone becomes blind, they lose a capacity, the capacity *to see*. This allows us to explain, in terms of capacities, why one person can see and another cannot: the first has SIGHT, the latter doesn't. Secondly, on this view, *if there are* distinct finer-grained capacities, they must be individuated partly in terms of the sensory modalities they are determinates of. This is because the arguments against Schellenberg's externalism effectively rule out modality-independent perceptual capacities. Therefore, any finer-grained capacities must have the senses as determinables which they 'go through' in order to get to be a determinate of PERCEPTION. So, there cannot be a modality-independent capacity to discriminate cubes; one must have a *visual* or a *tactual* capacity to discriminate cubes. This view thereby meets constraint (1), since perceptual capacities are individuated partly in terms of their place in a hierarchy of capacities, and by their relations to the senses.

Thirdly, it goes some way to meeting the methodological constraint, (2), because the view is compatible with MQ's empirical nature. Nothing I have said forces our hand on whether a Molyneux Subject is able to tell the cube from the sphere by SIGHT after gaining that capacity. It is simply an empirical question, the answer to which will depend on (amongst other things) the relations between the information-processing of the visual and tactual sensory systems, whether spatial representations are amodal or modality specific, and the role of sensorimotor engagement in visual shape identification.[18] MQ is left empirically open, and this is one way that the view I am developing meets constraint (2).

Since we are working our way down the scale of determinates, are there distinct capacities finer-grained and more determinate than the senses? We can certainly *do* things which are more fine-grained than seeing and hearing. We can discriminate colours and lengths, track perceptual constancies, and visually recognise faces. Do we need to posit distinct capacities to do these things as well? If so, we may find ourselves positing as many capacities as Schellenberg did.

However, I do not think this is necessary; the fact that we can do these things is explainable without positing distinct, specialised perceptual capacities. This is because the senses themselves can do the explanatory work because they are *evaluatively gradable capacities.*

Many capacities are evaluatively gradable: two people may have the same capacity to play tennis, but one may be much better than the other. Many capacities are not

[17] I have listed the traditional five senses, however things are more complex. Bats have ECHOLOCATION, and some think that humans have more than five senses (Macpherson, 2011). However, this is orthogonal to my claim. I am arguing that the senses are the second highest determinable perceptual capacities, and that is independent of how many senses there are, or which sensory systems underlie genuine senses.

[18] See Altieri (2015), Nanay (2020), Schwenkler (2015, 2019) for discussions of relevant empirical considerations.

only gradable, but are gradable on various axes (Douskos, 2019; Small, 2017).[19] For example, Serena Williams is not just better than me at tennis, but better than me at tennis in a whole host of respects. She has a more powerful serve, more elegant movement on the court, and more sophisticated shot-placement. Further, these facts explain why she would beat me every time. This means that, not only is the capacity to play tennis gradable on a better-worse spectrum, but its grade (in a person) depends on the better-worse gradability of various *axes* of the capacity.

The senses are also capacities whose grade (in a person) depends on the grade of their axes (in a person).[20] Take SIGHT. My SIGHT is worse than it used to be because things at all distances are now equally somewhat blurry. Contrast this with someone very short-sighted, for whom if anything is further than a meter away they can barely make it out. Contrast this person with someone very long-sighted who suffers the opposite deficit. We can all see, but our SIGHT is somewhat deficient in ways which are in some respects the same, and in other respects different. We all see some things blurrily, which is a deficiency in our SIGHT. However, my SIGHT is better than both the long-sighted and the short-sighted person's—there is no distance at which objects become blurry to the point of being unidentifiable for me. But whilst my SIGHT is better than both of theirs, each of them have aspects of their SIGHT which are better, and aspects which are worse, than each other's. Contrast all of us, now, with someone who does not struggle with visual acuity, but who is red-green colour-blind. The first three of us have no general problems with discriminating the colours of things, and in this respect our SIGHT is much better than this fourth perceiver. However, the red-green colour-blind person's SIGHT is much better with respect to visual acuity at all distances. Moreover, grades can fall to zero, for example in a case of someone who simply cannot discriminate static objects. With these contrasts we could continue adumbrating the various axes along which the grade of our SIGHT depends, however the point should be clear: SIGHT and the other senses are gradable capacities whose grade (in a subject) depends on the grade of the axes on which they are evaluable.

This offers us an alternative explanation of the more fine-grained things we can perceptually do, such as discriminate shades, or recognise faces, which allows us to avoid a proliferation of distinct capacities. Instead of explaining the possibility of diverse phenomenal characters and achievements by positing many distinct fine-grained capacities, we can explain a lot just by appealing to the complexity of the axes on which the senses are gradable, and the grade at which any given person sits on those axes. Rather than saying that someone who is excellent at discriminating amongst shades of red has more capacities than someone who cannot discriminate between any shades of red, we can simply say that the former person's SIGHT is better on the axis of colour-discrimination. They can employ SIGHT to discriminate more colours than the other person. Similarly, someone who cannot tell by TOUCH what texture a surface is but can tell its warmth has a deficiency in TOUCH with respect to one axis but not another. Tone-deaf people cannot employ AUDITION to tell differences in pitch, but can still discriminate the distance and location of sounds by AUDITION.

[19] See Douskos (2019, pp. 985–987) for a good overview of the semantics of ascriptions of evaluatively gradable capacities with multiple axes.

[20] Exactly how to compare people with the same capacity at different grades is somewhat tricky. I have opted to relativise grades to subjects, but there may be better alternatives.

The suggestion in each case is exactly parallel to the frankly inconspicuous claim that someone who can run one mile and someone who can run two miles, when they run, exercise the same capacity to run, albeit their capacities differ in grade on an axis regarding distance. We need not posit a distinct capacity-to-run-one-mile and a capacity-to-run-two-miles: the capacity to run, gradable as it is, is all we need for the relevant explanation (Small, 2017, pp. 250–254).

It may be worth clarifying the dialectic at this point. My argument does not work by presenting two proposals—one on which there are many low-level capacities and one on which the senses are gradable and do all the explanatory work—and arguing we should prefer the latter on the grounds of ontological parsimony. Rather, we posit capacities to fulfil explanatory demands (as I argued in Sect. 1), and I have argued that if the senses are gradable, then there is no explanatory work for lower-level capacities to do. Moreover, I have argued that the senses *are* gradable. So there is no explanatory need to posit lower-level capacities; our ontological commitments should be guided by explanatory requirements. Therefore, someone who thinks there are distinct finer-grained capacities would have to argue that there *is* an explanatory need for them, either because the senses are not gradable, or because the senses' gradability lacks explanatory power in some cases because they are not gradable on relevant axes.[21]

I have argued that the gradability of the senses screens-off any explanatory role for a great number of purportedly separate finer-grained capacities. We just do not *need* to posit a large number of finer-grained capacities to do the explanatory work. We can therefore see the number of perceptual capacities as being fairly small, and see their explanatory power as deriving from their internally complex natures, thereby avoiding the proliferation of fine-grained specialised capacities.

5 Two Objections

In this section, I want to consider two important objections to the picture I have laid out so far.[22] They are important because they seem to present great challenges to what I have said, but also because meeting them allows me to clarify central features of the view. The first objection presses me on whether it is possible to deny the existence of fine-grained capacities. The second asks whether the buck really stops with the senses.

Now, some may object to my picture because it looks like I deny the *existence* of perceptual capacities picked out by descriptions such as 'the capacity to visually discriminate scarlet' or 'the capacity to tell the distance of a noise'. For many this will spark worries relating to Austin's suggestion discussed in Sect. 1: it follows just from the fact that someone *A*-ed that they had the capacity to *A*. Some will think that this is just so obvious that my denial of it is absurd, and therefore my view must be rejected.

But I need not deny it, and I do not deny the existence of capacities to visually discriminate scarlet or to hear the distance of sounds. It is possible to assert the *existence* of those capacities without asserting their *distinctness* from other capacities. As I see

[21] Thanks to an anonymous reviewer for pressing me on this point.

[22] Thanks to Helen Steward for pressing both of these worries to me, although I'm not sure that what I say next will satisfy her.

it, the capacity to discriminate scarlet does exist, as does the capacity to discriminate yellow: they are both SIGHT. The capacity to tell the distance of a sound is AUDITION. The fact is that we can pick out coarse-grained capacities such as the senses with descriptions of things the senses can be employed to do but which are not their definitive acts. So, although it may be true that if *S A*-ed and *B*-ed then *S* has the capacity to *A* and the capacity to *B*, this claim about the existence (and possession by *S*) of these capacities does not entail that they are *two distinct* capacities. They may be the same thing, picked out in different ways. Confusion is liable if we assume that all semantically different descriptions of capacities have different extensions, and so commit us to *distinct* capacities. But that is clearly false. 'The capacity to see Hesperus' is semantically different to 'the capacity to see Phosphorus' but they refer to the same capacity, most likely, the capacity to see.

This means I can agree with Austin's general point, whilst denying the gloss on it I discussed in Sect. 1, the gloss which I suggested was likely behind Schellenberg's positing so many capacities. Therefore, whilst I have been arguing against the distinctness from the senses of capacities identified by semantically finer-grained descriptions, nothing I have said impugns the existence of capacities which serve as the referents of those descriptions. All that means is that these descriptions' referents are much coarser-grained capacities than the descriptions let on. So we can use 'the capacity to discriminate scarlet' or 'the capacity to discriminate chartreuse' if we like, but only so long as we understand that they refer to the very same capacity—SIGHT—and that our use of that talk does not commit us to individuating distinct, separate, capacities which are finer-grained than SIGHT.

Now I will turn to a second objection. I have argued that the complex gradability of the senses screens off any explanatory role for a whole host of putative fine-grained capacities. Does it screen-off a role for all such putative capacities? One might think that there are aspects of perceptual experience which cry out for explanation in terms of distinct capacities that are determinates of the senses.

For example, take facial recognition. Clearly some people are better at recognising faces than others, so whichever capacity underlies it is gradable. However, it seems somewhat resistant to treatment as an axis on which SIGHT can be evaluated. For one thing, although it is natural to think of colour-blindness as a deficiency in SIGHT, and tone-deafness as a deficiency in AUDITION, it is at least a little odd to think of someone who cannot easily recognise faces as having a deficiency in their SIGHT. This indicates that, although facial recognition is plausibly visual, it is not naturally identified with SIGHT, further indicating that it may be a determinate visual capacity ($^{\text{VISUAL}}C_{\text{FACIAL- RECOGNITION}}$, if you like).

Further, some people who have congenital prosopagnosia, a pathological facial recognition deficit, have no problems with vision more broadly, for example general object-recognition or visual acuity (Corrow et al., 2016; Geskin & Behrmann, 2018). Therefore, facial recognition might seem to have the hallmark of a distinct capacity that can be lost entirely whilst SIGHT itself is retained. And if one can lose the capacity to recognise faces but retain SIGHT, then they must be distinct capacities.

Now, some may respond to this argument by claiming that facial recognition is really a post-perceptual phenomenon, for example because they think perception only

represents low-level properties like colours and shapes.[23] Therefore, facial recognition does not require an explanation in terms of distinctively *perceptual* capacities. However, I want to grant for the sake of argument that facial recognition *is* perceptual, because I think that even if it is, we do not have sufficient reason to posit a distinct perceptual capacity. Therefore, the things I have to say are really conditional on the assumption that facial recognition is a perceptual phenomenon. On the face of it, the assumption is a good one (Landers, 2021; Stokes, 2021), but I will not commit myself either way in this paper.

I have three things to say in response to the considerations raised above. Firstly, if facial recognition is perceptual, then I do not think it is so implausible that someone with prosopagnosia cannot see as well as someone without it. It would be, after all, just a kind of visual recognition deficiency, just as red-green colour-blindness is a visual discrimination deficiency. Since I have argued that the senses are gradable on multiple axes, and that such deficiencies are explained by a subject's having a lower grade on a relevant axis of SIGHT (say), prosopagnosia can be dealt with in just the same way. And that would mean that the capacity to recognise faces *just is* SIGHT. Now, I accept that, as the objection states, this identification is somewhat unnatural. However, as I argued in response to the previous objection, there may be many true identity statements regarding capacities which seem unnatural because of the semantic difference between the descriptions the statements employ. This means that any unnaturalness can be explained away as a semantic effect.

Secondly, the thesis that facial recognition is an axis on which SIGHT is gradable is consistent with the fact that some people can see but not recognise faces, since the grade of an axis can fall to zero. If the grade of someone's SIGHT with respect to facial recognition is zero, then they will be unable to recognise faces. Now, we might normally say they have lost a capacity here. But there is no evidence for this interpretation over the gradability explanation; there is no special explanatory need to add a commitment to a new lower-level capacity. So, unless we find such a need, we should accept that facial recognition is a grade on which SIGHT can be evaluated, and that this grade can fall to zero.

Finally, though, I do not want to rule out that we *could* have an explanatory need for positing a distinct capacity. Perhaps there are certain sorts of evidence which would require it. However, I am pessimistic that such considerations could turn up. Consider the most natural evidence: that there are people who can recognise faces through the visual channels but totally lack SIGHT. This would, together with prosopagnosia, give us a double dissociation between SIGHT and facial recognition. And if one could recognise faces in this way without being able to see, then the facial recognition capacity could not be identified with SIGHT. But I doubt that such evidence is empirically possible. Since, as I have argued, the putative facial recognition capacity we are considering would have to be a determinate of SIGHT,[24] a subject could not have it and yet lack SIGHT, just as something could not be scarlet and yet not be red. Now, if this consideration were the *only possible* empirical evidence that could tell in favour of positing the

[23] See Block (2014) and Siegel and Byrne (2017) for discussion.

[24] Again, to be clear, this claim is conditional on the assumption that facial recognition is a perceptual, rather than post-perceptual phenomenon. If it is post-perceptual, then whatever capacity underlies facial recognition clearly is not SIGHT.

distinct capacity, then whether facial recognition *is* distinct is not an empirically open question. But it is unclear what other sort of evidence might be important. If there is none, then we should accept that the capacity to visually recognise faces is SIGHT.[25] Therefore, I conclude that there are good responses to both these objections, and that the view I defended in Sect. 4 is both clarified and bolstered.

6 Conclusion

In this paper, I have defended a view of the nature of perceptual capacities. I have argued that there are three important adequacy constraints on such a view, and I derived these from the way that the most fully developed view of perceptual capacities, due to Schellenberg, fails. In line with these constraints, I argued that PERCEPTION is just the capacity to perceive, that the senses are the immediate determinates of PERCEPTION, and that the senses' gradability allows them to do a vast amount of work in fulfilling the explanatory demands local to the study of perceptual experience. I also showed that the view can meet some important objections. This leaves us, I think, with a highly plausible view of the number and nature of perceptual capacities.

Acknowledgements I want to thank Andrea Blomkvist, Dominic Gregory, Helen Steward, and Luca Barlassina for invaluable comments on a number of drafts of this paper, without whose (extensive and kind) help it would be very much worse than it is. I want to also thank Will Morgan, Radivoj Stupar, and Eric Olson for letting me hijack Sheffield's metaphysics reading group and agreeing to discuss some papers which have been very influential in helping me think about some of these issues. I also want to thank two anonymous referees whose excellent comments have greatly improved this paper. I am also grateful to the White Rose College of the Arts and Humanities for the funding which has allowed me to write this paper.

Funding Arts and Humanities Research Council White Rose College of the Arts and Humanities Studentship (Studentship Number: 150143862).

Declaration

Conflict of interest The authors declare that they have no conflict of interest.

[25] Of course, if someone could show that there is a kind of evidence which could tell us whether there is an explanatory or predictive difference between my claim and the claim that facial recognition is a distinct capacity, then it *would* be an open question, and we could decide whether the gradability of SIGHT screens-off an explanatory role for a distinct capacity.

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