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OBJECTIVE SMELLS AND PARTIAL PERSPECTIVES

Abstract

The thesis that smells are objective and independent of perceivers may seem to be in tension with the phenomenon of perceptual variation. In this paper, I argue that there are principled reasons to think that perceptual variation is not a threat to objectivism about smells and is instead integral to our perceptual relation to the objective world. I first distinguish various kinds of perceptual variation, and argue that the most challenging cases for the objectivist are those where an odourant smells different in different conditions or to different perceivers but the odourant does not change, and there is neither misperception nor a simple failure to perceive a smell. I then argue that there is an independently plausible conception of olfactory experience on which even these challenging cases do not pose a threat to objectivism about smells. Following Kalderon's work in the domain of colour perception, I argue that olfactory perception provides us with a partial perspective on the smells around us, where this perspective is constrained by the conditions of perception as well as by features of the perceiver. Within this framework, we can allow that perceivers with different sensitivities, or the same perceiver in different conditions, genuinely perceive the same objective smell even though this smell appears different to them. In turn, smells are best understood as qualitatively complex entities, different aspects of which can become perceptually available in different conditions and to different perceivers.

Smell Objectivism

Many aspects of the way in which we experience, think about, and talk about smells suggest that smells are part of the objective world. First, phenomenologically, smells seem to us to be out there in our environment. The smell of freshly ground coffee reaches our noses, we can sniff around to find where that burnt smell comes from, the pungent odour of gasoline is something that can

suddenly hit us and that we can try to stop taking in by pinching our nose.¹ On reflection, these smells, scents and stenchs seem to be independent of us and our experiences of them: they are entities we can discover, track, get closer to, or try to avoid.

Second, we take smells to play an important epistemic role: we often rely on the way things smell to make judgements about the way things are in our environment. For instance, we take a burnt smell in the kitchen to indicate that the toast is burning and a sweet smell to inform us about the ripeness of the peaches. In fact, unless we are concerned with tasks where appearance is all that matters, such as deciding what perfume to wear or whether a certain food would pair well with a certain wine, this is why we are interested in the smells of things.

Third, we expect others to react to smells like we do and to agree with our judgements about the way things smell. If I think that the toast is burning, I will try and convince my flatmate that she needs to take it out by telling her that it smells burnt; I expect her to agree with me on what smell is present in the room and I expect her to take that smell as good evidence for my claim. We thus seem to take smells to be intersubjectively accessible entities that all of us who are endowed with the relevant perceptual capacities can perceive.

Smell Objectivism fits well with this evidence. On Smell Objectivism, olfactory experience presents us with entities in our environment that are objective and do not depend for their existence or nature on individual perceivers, their experiences, or their perceptual systems. For the purposes of this paper, I will focus on smells understood as olfactory qualities or properties, i.e. the properties that account for qualitative similarities and differences among olfactorily perceivable entities. For instance, I will talk of the smell of this cup of coffee as the quality or complex of qualities shared across different cups of coffee having the same smell.² Accordingly, I will discuss Smell Objectivism as a claim about the nature of smells understood as olfactory qualities. When I lift my cup of coffee and inhale, for instance, I am perceiving a smell – a coffee-y, or more precisely, say, a hazelnut-peachy coffee-y smell – which does not depend on me, my experience of it, or my perceptual system. As formulated, Smell Objectivism is neutral about what sort of entities the bearers of smells are, and whether we perceive those entities in addition to perceiving their smells.³ For all Smell Objectivism

¹ Richardson 2013.

² When talking of the smell of something we might instead mean the individual smell given off by the thing, whatever its quality is – e.g. the cloud of volatile molecules emanating from the cup of coffee (see e.g. Batty 2010).

³ The entities we can smell may be ordinary objects such as cups of coffee and pieces of toasts, the stuffs that these objects are made of, special olfactory objects such as clouds of molecules in the air – or the stuff that these are made of –, or properties only, including pluralist views

says, the smell of coffee may be a property instantiated by the cup, by the stuff in it, or by a cloud of volatile molecules emanating from it.

In the philosophical literature, Smell Objectivism as the general thesis that smells are objective and independent of perceivers has been defended by Batty (2009).⁴ More specific versions of Smell Objectivism include views on which olfactory qualities are, or are determined by, chemical properties of stuffs or odour clouds⁵ and views on which olfactory qualities are objective but irreducibly qualitative, although possibly supervenient on chemical properties.⁶

Smell Objectivism may seem to be in tension with some facts about olfactory experience. In our everyday communications, we usually assume that things of a certain kind have stable and recognisable smells. For instance, we assume that everyone who is familiar with coffee knows what it smells like, and what it means for something to smell of coffee. However, it is also common knowledge among us that things of a certain kind can smell different in different conditions and to different subjects. A cup of coffee, for instance, smells different when freshly made than it does once it has cooled down, if someone has sprayed a strong perfume in the air, or when we have a cold. Changes in how things smell across conditions or perceivers raise a challenge for Smell Objectivism when the way an object or substance smells changes even though the object or substance itself does not change in its objective, perceiver-independent properties. I will refer to these kinds of changes as cases of perceptual variation.

In cases of perceptual variation, it is not obvious what explains the way something smells in each condition, or to each perceiver. In particular, we cannot appeal to a change in the objective, perceiver-independent properties that are present. If smells were partly dependent on perceivers, their experiences, or their perceptual systems, then we would have a simple explanation: different subjects, or the same subject in different conditions, are perceiving different smells. This explanation is not available on Smell Objectivism. Whether olfactory properties are identical to, grounded in, or supervenient on, objective and perceiver-independent properties of odourants such as their chemical properties, Smell Objectivism cannot say that the olfactory properties of the thing have changed if the objective and perceiver-independent properties of the odourant have not changed. How can the defender of Smell Objectivism account for perceptual variation?

on which different kinds of entities can be olfactorily perceived. See e.g. Batty 2010, Carvalho 2014, Lycan 2014, Mizrahi 2014, Young 2016, Richardson 2018, Barwich 2019, Aasen 2019.

⁴ Batty's explicit focus is on the thesis that smells are real and non-relational, but she seems to defend Smell Objectivism as I formulate it. For instance, she defends the claim that the "the lilac smell is a perceiver-, or mind-, independent property of an odor" (Batty 2009: 327).

⁵ E.g. Carvalho 2014, Lycan 2014, Young 2016.

⁶ E.g. Richardson 2018.

As we will see, perceptual variation is an umbrella term for a range of fundamentally different phenomena, and not all cases of perceptual variation are equally challenging for Smell Objectivism. In *Varieties of perceptual variation*, I present some simple explanations of the variation in how something smells that the objectivist can propose for certain cases and discuss why they do not apply to some more challenging cases. In *Partial perception*, drawing on work on colour perception by Kalderon (2008, 2011), I put forward some principled reasons why the phenomenon of perceptual variation is not a threat to Smell Objectivism. Despite important differences, perception in both the visual and olfactory modality should be understood as providing us with a partial and constrained access to our environment. Within this general picture, the more challenging cases of variation in how things smell turn out not to be fundamentally different from the easier cases insofar as they do not pose a special threat to Smell Objectivism. In *Smells and smell aspects* I discuss how we should conceive of smells within this picture of olfactory perception.

Varieties of perceptual variation

While perceptual variation raises a prima facie challenge to Smell Objectivism, not all examples of variation are equally challenging. This is because perceptual variation, i.e. variation in how something smells that is not accompanied by a change in the objective and perceiver-independent properties of the thing giving off that smell, is not a unified phenomenon.

First of all, some cases where we would say that the way the same thing smells changes are not, at a closer look, instances of perceptual variation. In these cases, there is in fact a change in the objective and perceiver-independent properties of the odourant. If you add some basil to a tomato sauce, the sauce comes to smell different: the fresh fragrance of basil now hits your nose. Here the defender of Smell Objectivism has an easy explanation. The sauce smells different because its smell has changed: the objective and perceiver-independent properties present in the two conditions have changed, because a new substance with a smell of its own has been introduced (the basil). Whether olfactory properties are grounded in, supervenient on, or identical to, objective and perceiver-independent properties of odourants, if there is a change in the latter, we can argue that there is a change in the former properties, where these may well be objective and perceiver-independent. This and similar cases are thus not really examples of perceptual variation, and pose no obstacle to Smell Objectivism.⁷

⁷The opponent of Smell Objectivism could of course deny that the initial olfactory qualities of the smell given off by the tomato sauce are objective and perceiver-independent. But then their argument for this claim would not be based on the phenomenon of perceptual variation. For an independent argument against Smell Objectivism, see Pautz (2014, forthcoming), who

Similar considerations arguably apply when there is a change in the concentration or distribution of the odourant or smelly stuff in the environment.⁸ For example, when we open a window in an attempt to get rid of an unpleasant, stuffy smell, the smell becomes less intense. Letting fresh air in results in a change in the objective and perceiver-independent properties of the source of the smell, of the odour cloud, or of the stuff the cloud or the source are made of. This change can in turn explain the change in the intensity of the smell consistently with Smell Objectivism.⁹

Consider now cases that do involve perceptual variation, i.e. where the way something smells changes although the objective and perceiver-independent properties of the odourant, of the stuff the odourant is made of, or of the cloud of odoriferous molecules in the air do not change. Among these cases, some are relatively easy for the objectivist to account for. The first kind of ‘easy’ case is one where the variation in how things smell is explained by a difference in which of the available smells are perceived. One morning, your freshly-made cup of coffee smells intensely coffee-y. The next morning, the coffee has been freshly made just like the day before, but, disappointingly, you cannot smell anything at all; you have a stuffy nose due to a bad cold. The difference in how your coffee smells across the two mornings is explained by a difference in what smells you perceive. As Batty argues, this difference is compatible with the objectivity and perceiver-independence of those smells, because it is simply the difference between perceiving and failing to perceive the coffee-y smell that is there anyway.¹⁰

This type of explanation can be applied to a variety of cases of perceptual variation which, despite important differences in the causes and underlying mechanisms, involve a failure to perceive a smell that is present. Factors that may prevent one from perceiving a smell may be intervening media, such as a closed door or window between oneself and the source of the smell, or proper-

argues that the objectivist struggles to explain patterns of qualitative similarity and difference in terms of chemical properties of odourants.

⁸ For discussion of how similar changes in intensity can be explained in terms of properties of the odour plume, see Young, Escalon, Matthew 2020.

⁹ Some variations in concentration result in a difference in perceived quality, not merely intensity – e.g. an odourant may smell fruity and pleasant at low concentrations but pungent at higher concentrations. While these cases involve a change in the properties of the objective properties of the odourant, they raise special challenges which I cannot address here (see Batty 2010 for discussion).

¹⁰ Batty 2009: 331-332. Batty focuses on the example of specific anosmia to androstenone, a substance that smells of urine to some subjects but has no smell for others due to differences in the subject’s olfactory receptors. I suggest that the defender of Smell Objectivism can adopt a similar strategy in all cases where, for whatever reason, one is not in a condition to perceive the available smells in one’s environment.

ties of the subject or their perceptual system that permanently or temporarily impair their olfactory capacities, such as having a bad cold, having the nose pinched, or being anosmic.

Another class of cases of perceptual variation that are not, on the face of it, especially problematic for Smell Objectivism are illusions and hallucinations. Whatever their causes, these are usually understood as experiences where it perceptually seems to one as if a smell is present even though it is not.¹¹ For instance, someone who suffers from phantosmia may experience a smell of burnt rubber as being present when it is not. There are various ways for the objectivist to account for this apparent awareness of an absent smell, depending on their wider commitments concerning the nature of perceptual experience. For instance, they could appeal to olfactory misrepresentation, mental imagery, or false judgements accompanied by other non-perceptual experiences. Regardless of one's preference, an account of illusions and hallucinations does not have direct consequences for the nature of olfactory qualities. In the genuine case, the defender of Smell Objectivism would hold that one perceives objective and perceiver-independent smells. In the illusory and hallucinatory cases, they would hold that one fails to perceive whatever objective and perceiver-independent smells might be there, then offer an independent explanation of the fact that it seems to one as if one is perceiving some other smell.

Some cases of perceptual variation are more challenging for Smell Objectivism. These are cases where something smells different across perceivers or across conditions, but there is no change in the objective properties of the odourant, no misperception, and no failure to perceive the odourant's smell. Cases of perceptual variation with an analogous structure also occur in the visual domain, where they have been widely discussed. For instance, we know that surfaces of a certain colour look different under different illuminants or to subjects with different visual systems, such as the colour-blind. The domain of olfaction seems to present a special challenge to an objectivist about sensible properties because non-illusory perceptual variation is widespread and takes many different forms.

Consider how changes in one's environment can affect how something smells without preventing one from perceiving that thing's smell. For instance, the same strawberries smell different with changes in ambient temperature – they smell stronger when they have been out of the fridge – or due to intervening media – they smell weaker if one is wearing a face mask. Sometimes, the change in how things smell does not merely concern intensity. This can occur if other smells are introduced in the same environment: a slice of the same cake will

¹¹ As a matter of fact, I think that many experiences that are sometimes classified as olfactory illusions (see e.g. Stevenson 2011, Batty 2014) are in fact genuine perceptions. This commitment, however, is not required to defend Smell Objectivism.

smell different to you if you are wearing a strong perfume or if the table nearby is having an anchovy pizza.

What smells one has recently experienced is another factor that can make a difference to how things smell to one. Dihydromyrcenol, for instance, smells more citrusy or more woody depending on whether one has just perceived woody or citrusy smells.¹² A more familiar example is that of a piece of 60% dark chocolate, which smells milky and sweet right after one has smelled a piece of darker 90% chocolate, but more cocoa-y after one has smelled a piece of milk chocolate.

These scenarios differ from the ‘easy’ cases of variation because one keeps perceiving the target smell – of strawberries, of cake, of dark chocolate – across the different environmental changes; the difference, then, is thus not simply one between perceiving and failing to perceive a smell. Moreover, it does not seem plausible that one is suffering an illusion or misperception in one condition but not the other. For instance, one may not enjoy the smell of cake as much when it is mixed with that of anchovies, but this does not mean that one does not genuinely perceive the smell the cake gives off.

This interpretation of the cases is supported by the fact that perceivers recognise what they are smelling as the same in spite of the changes. While the cake smells different when anchovies are present, it still gives off a recognisably cake-like smell, and one is not inclined to judge that one is now smelling a different cake, or a different kind of thing altogether – a sweet anchovy pizza, say. Even though researchers disagree over the extent and significance of olfactory constancy,¹³ we are often able to recognise whether or not we are smelling the same sort of thing across changes in the way the thing smells. For instance, when we move closer to a bakery and the air smells more intensely of warm bread, we usually take ourselves to be moving closer to the source of the smell – that is, the one smell of warm bread we are perceiving throughout – rather than taking the smell to be changing.¹⁴ That we are often able to make these judgements about the likely constant presence of certain kinds of sources of smells does not mean that our experience does not change across conditions. Instead, the presence of perceptual constancy in spite of perceptual variation suggests that our varying perceptual experiences do not generally mislead us into making false judgements about the sources of smells in our environment. This, in turn, supports the claim that these cases do not involve misperception or illusion.

¹² Lawless 1991, Lawless, Glatter, Hohn 1991.

¹³ Barwich (2019) argues that olfactory experience generally does not exhibit constancy in the same way as vision. What I say here is compatible with her thesis, as I am only claiming that our olfaction-based *judgements* about the environment generally exhibit some degree of constancy.

¹⁴ E.g. Carvalho 2014, Millar 2020.

Certain intersubjective cases of perceptual variation have a similar structure. Here, properties of the perceiver or their perceptual system affect how things smell to them.¹⁵ Perceivers with hyposmia have a lower olfactory sensitivity than the norm, but this condition often does not simply prevent them from perceiving the smells in their environment. Rather, the same thing may smell weaker to them than it does to a normal or normosmic perceiver, and sometimes it may also smell qualitatively different. This is because, as Batty points out, exposure to the same odourant may result in a different pattern of receptor activation in hyposmic subjects, who have diminished olfactory receptor density or receptor sensitivity, and normosmic subjects. And differences in pattern of receptor activation seem to correlate with differences in how things qualitatively smell.¹⁶ Subjects with specific anosmias, i.e. anosmias to specific chemical compounds, may also have different olfactory experiences than normosmic perceivers when presented with the same odourants. In most circumstances, a specific anosmia to a certain chemical does not result in a failure to perceive a smell – this is so only when one is presented with that pure chemical on its own. Because the smells we normally encounter are given off by mixtures of many different chemicals, a specific anosmia to one of those chemicals may result in things smelling different to a specifically anosmic and to a normosmic perceiver, although both seem to perceive the smell that is there. For instance, subjects who have a specific anosmia to trimethylamine, a fishy-smelling chemical, tend to eat fish with strong smells that non-anosmic perceivers find revolting.¹⁷ This suggests that although both kinds of subjects perceive the smell of fish, fish smells different to them.

Now, one might wonder whether these intersubjective cases are best understood as involving an illusion.¹⁸ One of the two subjects is hyposmic or partially anosmic, which means that their olfactory sensitivity differs from that of normosmic perceivers. However, this is not a good reason for thinking that this subject is having illusions in the cases under discussion, while the normosmic perceiver is not. Being a normosmic perceiver just means having olfactory capacities within a range that is considered normal, where ‘normal’ does not per se have

¹⁵ Here I present intersubjective cases where subjects differ in olfactory sensitivity, but there are other causes of intersubjective perceptual variation. I should note, however, that not all cases where subjects’ reports in response to sniffing the same odourant differ are cases of perceptual variation as I characterise it. For instance, linguistic labels suggesting the presence of a certain kind of source of the smell elicit very different reactions in subjects presented with the same odourant: sniffing butyric acid results in positive vs. disgusted responses if the acid is labelled as ‘parmesan’ vs. ‘vomit’ – see Barwich 2019 for discussion. It is not obvious that this case involves a change in olfactory experience rather than a change in conceptualisation and hedonic response to the same experience.

¹⁶ Batty 2010: 1154-1155.

¹⁷ Hawkes, Doty 2017: 30-31.

¹⁸ Batty (2009) suggests this interpretation.

normative implications, and could simply be a conventional categorisation that is helpful for various diagnostic and practical purposes and generally applies to the majority of (human) perceivers.

Arguments developed in the domain of colour perception tell against treating similar cases as illusions or misperceptions. For instance, among otherwise normally-sighted perceivers there is significant variation in reports concerning hues: certain shades are reported as pure or unique green by some subjects, but as bluish green by others.¹⁹ As Cohen (2009) argues, we have no non-arbitrary reasons to take some of the perceivers, but not others, to undergo colour illusions. Criteria such as similarity to the numerical majority, average performance, reference to what is defined as standard for scientific purposes etc. may be useful for certain practical goals, but remain arbitrary as criteria for establishing whether a certain subject is genuinely perceiving the properties in their environment.²⁰

The same arguments, it seems, apply in the domain of olfactory perception, where differences in sensitivity may be even more common. There seems to be significant variability in the pattern of olfactory receptors each of us is endowed with.²¹ As a result, our olfactory sensitivity to different odourants may, as a rule, differ to some degree. This might mean that, as Barwich puts it, “individual noses smell the world differently”.²² Both hyposmias and specific anosmias, for instance, are relatively common – for some odourants, they affect up to 50% of otherwise normal perceivers.²³

Overall, in many cases of olfactory perceptual variation the odourant does not seem to change in its objective and perceiver-independent properties, and we cannot appeal to either illusions or simple failures to perceive the smell of odourant. What can the defender of Smell Objectivism say in these cases?

Partial perception

How can we reconcile the objectivity of smells with potentially widespread non-illusory variation in how things smell? The key, I argue, is to reflect on what kind of perceptual relation, in general, we have to the objective world. Variation in how things smell will then turn out to be less mysterious and problematic than we might have thought.

There are certain ways of thinking about perception and the way things appear to us that might lead one to think that objectivist views of sensible properties,

¹⁹ E.g. Cohen 2009, Allen 2016.

²⁰ Cohen 2009: 31-33.

²¹ E.g. Lawless 1997, Keller *et al.* 2017, Barwich 2019.

²² Barwich 2019: 5.

²³ Hawkes, Doty 2017.

such as Smell Objectivism, are threatened by perceptual variation. A very strong assumption that would show the outright incompatibility of Smell Objectivism and perceptual variation is that, if smells are objective, something that has a smell smells the same in all conditions. As Burnyeat argues, something like the assumption that if a certain sensible property is real and objective, then it appears the same in all conditions seems to play an implicit role in various arguments against the reality and objectivity of sensible properties from the pre-socratics to modern philosophers.²⁴ Given this assumption, variations in how things smell would be incompatible with smells being objective and perceiver-independent. But this assumption is obviously implausible. Think just how implausible it sounds in the case of a paradigmatically objective property such as shape: no one would hold that if shape is an objective property, then an object with a certain shape looks the same in all circumstances. Similar considerations apply to a related assumption concerning the way things smell to perceivers. On this assumption, if smells are objective, then something which has a smell smells the same to everyone in a given condition, i.e. everyone who is presented with that thing will have the same sort of olfactory experience. Again, everyone would agree that this assumption is too strong.

The reason why these assumptions about the relation between the ways things appear and sensible properties are implausible is that perception, in general, is *partial*. The partiality of perception is the thesis that what one perceives depends not only on what there is to perceive, but also on one's perceptual sensitivity and the conditions of perception.²⁵ While the partiality thesis may seem obvious, it has important consequences. As Kalderon argues, if perception is partial, there may be 1) properties of an object that are simply not perceivable; 2) perceivable properties and parts of an object that are "occluded from view" (such as the colour of the back of an object); 3) perceivable properties that are only perceptually available in certain conditions (a colour may not be visible if the light is too dim); 4) perceivable properties that are only available to certain perceivers, given their perceptual sensitivity (colours may not be available to an achromatopic perceiver).²⁶

If perception is partial, then not everything there is to perceive about an object is revealed in a single perceptual encounter with it. But then it is to be expected that the object appears different in different conditions and to different perceivers. Different perceptual encounters, in Kalderon's words, provide different, partial "perspectives" on the perceivable entities around us, making

²⁴ Burnyeat 1979: 73-74.

²⁵ Kalderon 2008, 2011, Hilbert 1987.

²⁶ Kalderon 2011: 244-245.

different aspects of what is perceivable available to us.²⁷ Visual perception of three-dimensional objects gives us a straightforward illustration. A cup, for instance, looks different when observed from the top than it does from the bottom. This is because, with a change in point of view, different parts of the cup become available (the handle, the inside of the cup). The cup is genuinely perceived from both points of view, even though not every visible aspect of it is available to one from each point of view.

How does the partiality of perception apply to olfaction? The example of perception of three-dimensional objects helps only up to a point, as it does not give us a model that can be straightforwardly applied to smells understood as sensible qualities.²⁸ We can, however, turn to the example of colour, which is precisely Kalderon's target. According to Kalderon, partiality applies to our perception of a property just as to our perception of an object. If perception is partial, there may be visible aspects of a colour that are only available in certain conditions of perception as well as visible aspects of a colour that are only available to certain perceivers in the same conditions of perception.²⁹ For instance, a blue object looks a certain way in dim, orange-y light and another way in midday sunlight. On Kalderon's view, this is because each lighting condition makes different aspects of the colour available to a potential perceiver. Consider now an intersubjective case of perceptual variation, such as when a blue object looks a certain way to a certain perceiver and a different way to a perceiver with a slightly different visual sensitivity to blue hues. Here different aspects of the blueness are available to different perceivers.

This picture of colour perception as partial has two advantages which are important for our purposes. First, it is compatible with taking colours to be objective and independent of perceivers. The role that perceivers' properties, such as their sensitivity, play in perception is not that of partly determining the nature of the colours perceived – as on views on which colours are relative to perceivers. Instead, they play the role of determining the perceiver's partial perspective, and so which aspects of the colours present in their environment are perceptually available to them in certain conditions.³⁰

Second, Kalderon's is a picture of genuine, i.e. non-illusory colour perception. That one's perspective on the colour one is presented with is always partial does not mean that it is defective, misleading, or illusory: it is nothing short of

²⁷ Kalderon 2011: 248-249.

²⁸ There may be conceptions of olfactory *objects* on which these are three-dimensional individuals, albeit with fuzzier edges than ordinary visible objects – e.g. if they are clouds of volatile molecules. Even on those conceptions, the olfactory qualities of these individuals are plausibly neither three-dimensional objects nor parts of these.

²⁹ Kalderon 2011: 247-249, 256.

³⁰ *Ivi*: 242-245, 257-258.

perceiving the colour. So, for instance, it is not the case that one only counts as perceiving the colour of the blue object in midday sunlight – one may perceive it in the orange-y lighting as well. If all perceptual encounters with a colour are partial, there is not one way of looking, or even a privileged, restricted subset of ways of looking, which is the one that a blue object must look if one is to count as perceiving it.

As with colours, so with smells. Understanding olfactory perception as partial allows us to see how perceptual variation is integral to our perceptual relation to the objective environment. To begin with, certain smells may be utterly imperceptible for certain kinds of perceivers or in certain contextual conditions. This is what happens in some of the ‘easy’ cases of perceptual variation: a bad cold or anosmia, as well as conditions such as a very low temperature or intervening media may prevent one from perceiving the objective smells that are there. But we can now see how the challenging cases of perceptual variation are more similar to the easy ones than it first seemed, as they are also the result of the partiality of perception.

Following the example of colour, one may perceive a smell even though one has access only to a certain aspect of it. If perception is partial, not every perceivable aspect of a smell is available in a single perceptual encounter with it, and the conditions of perception as well as properties of the perceiver may make a difference to which aspects of the smell they have perceptual access to in a given encounter with it. As in the more challenging cases of non-illusory perceptual variation, different subjects, or one subject in different conditions, may have different partial perspectives on the same smell, which thus appears different to them.

By acknowledging the partiality of olfactory perception we can vindicate the observation, motivated in the second section of this paper, that these cases involve neither misperception nor failure to perceive the smell. We have no non-arbitrary reasons to deny that one perceives the smell of cake when anchovy pizza is nearby or that a hyposmic subject perceives the smell of fish even though their sensitivity to a certain component chemical in the source is lower than normal. If perception is partial, then different partial perspectives can all be perceptual encounters with the same smell. It is not the case that one only counts as perceiving the smell of cake in, say, a recently aerated room with no other sources of smells around and when one has perfectly clear sinuses: there is no privileged way of smelling, or restricted subset of ways of smelling, that is the one the odourant should smell to one who is perceiving its smell.

The partiality of perception gives defenders of Smell Objectivism a framework for understanding the varieties of perceptual variation as resulting from the limitations and constraints of our perceptual access to the smells and smelly entities in our environment. And this framework is independently plausible. Barwich (2019) argues, in light of empirical evidence, that variation in the perceivers’ olfactory experiences is grounded in the causal mechanisms of ol-

factory perception. Our olfactory system is sensitive not only to features of the odourants presented, but also to environmental changes, the perceiver's own receptor makeup, and contextually salient information. On Barwich's view, in fact, perceptual variation is a mark of the objectivity of olfactory perception, rather than of its misleading, illusory or purely subjective nature.³¹

For our purposes, partiality allows us to see how Smell Objectivism and perceptual variation are not in tension. Since we have an explanation of why genuine, i.e. non-illusory, perceptual encounters with a certain smell can result in phenomenologically different perceptual experiences, we have no reason to take these different experiences to indicate that different smells are being perceived. As a result, these different experiences give us no reason to deny that the smells perceived are fully objective and independent of perceivers, their experiences, and their perceptual systems.

Smells and smell aspects

Suppose we agree that olfactory perception is best understood according to the partiality thesis: each perceptual encounter offers a partial and constrained perspective on the perceivable environment, and so different perspectives can reveal different aspects of our environment. We thus face the question of what sort of entities smells need to be in order to fit within this picture.

In the case of visual object perception, the answer is clear: to have different partial perspectives on an object is to occupy different points of view in space, and different perspectives reveal different visible aspects insofar as they bring different parts of the object into view. But as we have already noted, this spatial model will not do for the case of smell. Colour provides, again, a more helpful starting point. One's partial perspective on a colour seems to be determined by many factors other than one's point of view, including lighting conditions, the texture and shape of the coloured object, surrounding colours, intervening media, as well as subjective factors, such as one's visual sensitivity to hue. On Kalderon's view of the nature of colours, which complements his account of colour perception as partial, colours are 'multifaceted', i.e. they have multiple qualitative aspects which can be available in different conditions and to different perceivers.³² An example of a conception of colour that fits this characterisation is offered by Broackes (1992, 2010). On Broackes' view, the colour of a surface is a complex property that we can characterise by "the way it changes the light

³¹ Carvalho's (2014) and Millar's (2020) discussion of how, in olfactory experience, we can be aware of invariant, objective aspects of our environment in spite of continuous sensory changes are also broadly in agreement with the framework I propose. Notably, these authors are not concerned with defending objectivist views of olfactory qualities.

³² Kalderon 2008, 2011.

falling on it in the process of reflecting it".³³ A colour thus manifests itself differently in different lighting conditions, revealing different qualitative aspects.

Smells too, I propose, are best understood as being multifaceted, qualitatively complex entities. But what does it mean for a smell to have qualitative aspects? One strategy is to think of smell aspects as higher-order perceivable properties of smells. The idea is familiar from the debate on colour perception and has been developed by Shoemaker (2000). On Shoemaker's view, variation in how a colour looks is explained by the presence of different perceiver-dependent appearance properties of the colour. Analogously, a defender of Smell Objectivism might argue that a smell has multiple higher-level appearance properties, but construed as objective and perceiver-independent. Whenever a smell appears different to one in different conditions, or to different perceivers, different appearance properties of the smell are being perceived. Appealing to perceivable properties distinct from the smells, however, raises various worries. For one, one may worry that smells would turn out to only be perceived in virtue of one's perception of the related appearance properties.³⁴ For another, one may worry that the appearance properties would be 'in competition' with the smell itself for playing the role of what explains the way things smell in perception.³⁵

A more promising strategy is to think of smells themselves as having a complex qualitative structure. Some proposals in the literature on smells and flavours go in this direction. Smith (2008, 2020) argues that the flavour of a wine is a dynamic flavour profile which evolves over time;³⁶ in the same vein, Todd (2018) maintains that smells are variable and acquire new aspects and dimensions; Millar (2020) observes how a perfume may gradually disclose different aspects, from a refreshing top note to a heavy base note. These observations are certainly plausible for many common odourants. But they only apply to cases where the way an odourant smells changes because the odourant itself has changed over time – due to a change in either its chemical properties or the distribution and concentration of volatile molecules it gives off.

What we need in order to address cases of perceptual variation is a conception on which the same complex smell may be present, without any change in the source of the smell, and yet different aspects of it are manifested in different conditions of perception, or are available to different perceivers in the same con-

³³ Broackes 2010: 365-366.

³⁴ Shoemaker (2006) proposes a new version of this view to address precisely this worry, but it is not clear whether his new qualitative characters are sufficiently different from his old appearance properties.

³⁵ Kalderon 2011: 257-258.

³⁶ Smith focuses on flavours, which are complex properties perception of which involves the contribution of different sensory modalities, including smell and taste. Here I am considering how a similar proposal would apply to smells, which are not essentially multisensory.

ditions of perception. On one option, smells are qualitatively complex because they have different component parts or because they are complexes of different olfactory qualities. Having a partial perspective on a smelly object would mean, then, that some component olfactory properties or parts of its smell are not perceptually available to one in a given encounter with the smell – just like the red back side of an otherwise white object may be occluded from view. A perceiver with a specific anosmia to a component of coffee, for instance, may be presented with a different aspect of its smell than a normosmic perceiver because they are failing to perceive a component quality or part of the overall smell.

On another option, smells are complex insofar as they have multiple notes or dimensions that are not necessarily separable or distinguishable from the overall smell. When, after smelling 90% dark chocolate, the milky-ness and sweetness of the smell of 60% dark chocolate stands out, one is not perceiving a novel olfactory property or part of the smell that one did not perceive before. Rather, an aspect of the qualitatively complex smell of chocolate one perceives throughout becomes especially salient to one.

Further research, both theoretical and empirical, is needed to develop these options, establish whether they are alternative or complementary, and explore further proposals. Both options, however, give us a sense of what it means for a smell to be multifaceted and for different partial perspectives to reveal different aspects of a smell, compatibly with Smell Objectivism.

This conception of smells as qualitatively complex allows us to appreciate an interesting consequence of partiality, which has implications for the epistemology of olfactory perception. As various authors emphasise for the case of colour, perception ordinarily involves a dynamic exploration of the objects and properties one sees.³⁷ If perception is always partial, one could argue that visual exploration in a variety of viewing conditions is required in order to know which colour one is seeing; for instance, one needs to see how a surface ‘behaves’ under different illuminants.³⁸

The epistemic role of perceptual exploration is equally important in the domain of olfaction. If smells have multiple qualitative dimensions or aspects that may become accessible to one only in certain conditions, then each partial perspective on a smell allows one to discover something about its complex qualitative nature. If so, multiple encounters with a smell, in a variety of conditions and adopting different strategies of perceptual exploration, may be needed in order to gain a complete knowledge of what smell one is perceiving.

Sometimes multiple encounters are required because the smell itself evolves and discloses new aspects. As Smith argues for the case of flavour, “an individual’s flavor perception at a time can only be a snapshot of the flavor of the food or

³⁷ E.g. Kalderon 2008, Broackes 2010, Matthen 2014, Chirimuuta 2017.

³⁸ Kalderon 2008, Broackes 2010.

wine we are trying to detect. [...] We often have to taste and retaste a dish or a wine to pick out and note all of the flavors it has”.³⁹ But if our perception of a smell is always partial, affected by contextual conditions and constrained by our olfactory sensitivity, a smell, like a flavour, will as a rule reveal different aspects in different encounters – even when the odourant itself does not change.

Our modes of perceptual engagement with the odourant can make different aspects of the same smell available to us. Our bodily interactions with the odourant, such as the way we inhale and sniff, result in phenomenally different experiences of the same smell.⁴⁰ Smelling attentively and intently can allow us to discover subtler notes we did not immediately notice (e.g. a hazelnut note in the smell of coffee), which we take to be notes of what we were already smelling.⁴¹ Moreover, different ways of attending make a difference to how things smell. We can smell synthetically, by attending to the whole, unified smell of coffee we are presented with; or we can smell analytically, and attend to the hazelnut note, the citrusy note, the cocoa aspect of the same smell. As Smith (2008) argues, both perceptual strategies are equally valid, and expert tasters may be in an epistemically superior position than novices because they can switch between them. On the approach I am recommending, these are examples of perceptual exploration allowing a perceiver to discover multiple aspects of the same smell. Such exploration will lead to even further discoveries if we perceive the same smell in different conditions. For instance, smelling a piece of dark chocolate after smelling a milkier chocolate might make a roasted note of its smell salient; smelling gingerbread spice and garam masala in the same setting might make us notice how they share a sweet, cinnamon-y note.

Now, one may wonder whether different partial perspectives on a smell, different perceptual experiences of the same smell, really are equally valid.⁴² I have argued that an odourant may smell significantly different to one in different conditions, or to different perceivers, compatibly with genuine perception of the odourant’s smell.⁴³ Still, we can allow that there is a sense in which some perspectives on a smell are epistemically privileged. For instance, it may be that being in certain conditions of perception – e.g. being in a freshly aerated but not too cold room – and having certain perceptual capacities – e.g. being normosmic rather than hyposmic, and having clear sinuses – are more conducive

³⁹ Smith 2020: 46.

⁴⁰ Millar 2020.

⁴¹ Carvalho presents a similar example, but takes it to support the claim that we perceive olfactory objects which are the bearers of different qualities (2014: 55-57).

⁴² Cfr. Smith 2020.

⁴³ Of course, this per se does not rule out that some olfactory experiences are illusory. But if they are, this is not merely justified by their being different from some other experiences one has in different conditions or from the experiences of normal subjects.

to judgements about the smells of things that, in our linguistic community, we consider to be correct. In everyday life these judgements will often concern the likely or typical sources of the smell being perceived. For instance, smelling an apple cake right out of the oven is more conducive to judging that the smell one perceives is a smell of apple cake than smelling the same cake when an anchovy pizza is nearby. Certain ways of smelling may be paradigmatic of smells of a certain kind.

Relatedly, different partial perspectives may not be equivalent in affording us with perceptual constancy. We noted earlier that we generally are able to tell whether what we are smelling is the same despite changes in how things appear. If smells have aspects, how do we recognise these aspects as aspects of the same smell? Here one's prior experience with odourants with that smell will make a difference. In virtue of having encountered a certain smell in a variety of different conditions, one can recognise that a certain aspect is an aspect of that smell – for instance, that this is how one's favourite coffee smells when one's partner sprays a strong perfume in the room.

Conclusion

The thesis that smells are objective and independent of perceivers may seem to be in tension with the phenomenon of perceptual variation, and in particular with cases of variation that do not involve misperceptions or simple failures to perceive a smell. In this paper, I have presented some principled reasons to think that perceptual variation is not a threat to Smell Objectivism. On a plausible conception of perception as providing us, in each perceptual encounter, with a partial perspective on the olfactory world, we can allow that perceivers with different sensitivities, or the same perceiver in different conditions, genuinely perceive the same objective smells even though these smells appear different to them. I have also argued that this picture of olfactory perception requires that smells are understood as qualitatively complex entities, different aspects of which can become perceptually available in different conditions and to different perceivers. Within this approach, perceptual variation turns out to be integral to our partial perceptual relation to the objective world.

I have thus offered the outline of a promising strategy that the defender of Smell Objectivism can pursue in order to account for perceptual variation. Our discussion, however, highlighted some questions in need of further investigation. First, the objectivist needs to develop a full account of smells understood as qualitatively complex entities, clarifying what similarities and differences there are with the case of colour. Moreover, my discussion here remained neutral as regards the precise nature of smells, e.g. whether they are chemical properties of some kind or purely qualitative, irreducible properties. A second question for the objectivist to explore, then, is whether the suggested conception of smells

as qualitatively complex fits well within a broadly physicalist view of smells, as Kalderon (2011) argues in the domain of colour, or instead requires that smells are construed as perceiver-independent but irreducibly qualitative.^{44,45}

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⁴⁴ E.g. Richardson 2018.

⁴⁵ I am very grateful to Simon Wimmer for discussing with me many of the ideas explored in this paper, and to two anonymous reviewers for their helpful comments. Research that resulted in this paper has been supported by a OeAD Ernst Mach Grant.

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