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## *The Content of Olfactory Experience*

**Abstract:** *Clare Batty has recently argued that the content of human olfactory experience is 'a very weak kind of abstract, or existentially quantified content', and so that 'there is no way things smell'. Her arguments are based on two claims. Firstly, that there is no intuitive distinction between olfactory hallucination and olfactory illusion. Secondly, that olfaction 'does not present smell at particular locations', and 'seems disengaged from any particular object'. The present article shows both of these claims to be false. It shows that naïve subjects find it quite natural to draw a distinction between olfactory hallucination and olfactory illusion. And it argues that the phenomenology of normal olfactory experience is of particular objects as having smells. Two confusions are responsible for Batty thinking otherwise: (1) Batty's examples are cases of extreme pungency, and she mistakes a peculiarity of intense perceptions for a property of olfaction more generally; (2) Batty focuses on very short time slices and so confuses limitations on the information carried by a single sniff for a limitation on the logical form of all olfactory content.*

In an important contribution to a recent issue of this journal Clare Batty argues that the content of human olfactory experience is 'a very weak kind of abstract, or existentially quantified, content' (Batty, 2010, p. 21), and that: 'As a result, there is no way that things smell' (p. 19). Batty presents these conclusions as capturing certain manifest features of the phenomenology of olfaction. Her aim, she tell us, is to 'argue for a view about the nature of olfactory content that honors its phenomenology' (p. 11). But her conclusions' claim to phenomen-

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ological plausibility is surely quite dubious. Even after reflection on the nature of olfactory experience it seems phenomenologically accurate to say the sort of thing that Batty's view forbids us from saying: that there is such a thing as a way that things smell. It seems perfectly natural, for example, to say that my roses smell a certain way, that my compost heap smells a different way, and that my lawn clippings smell a third way. These claims seem obvious. They do not seem to be figurative. Nor do they seem to be exaggerations, or instances of loose talk. We should not give them up unless an argument proceeding from even more obvious premises forces us to do so.

The argument that leads Batty into a position that gives up such claims is based on an inference to the best explanation of two alleged facts. The first of these alleged facts is that, because 'the notion of an olfactory illusion is not something that resonates with us' (p. 12), 'the traditional distinction between illusion and hallucination does not apply to olfactory experience' (p. 24). The second alleged fact is that 'olfactory experience does not present smells in distinct locations' (p. 15) and so 'seems disengaged from any particular object' (p. 16), with the result that olfaction 'cannot solve the Many Properties Problem'; where this 'Many Properties Problem' is understood as being 'the problem of distinguishing between scenes in which the same properties are instantiated but in different arrangements' (p. 14).

Given the first of these two alleged facts as an explanandum the inference that leads to Batty's picture, as giving us the best account of olfactory content, is relatively straightforward.

The traditional difference between hallucination and illusion, as Batty understands it, depends on it being the case that in illusion, but not in hallucination, we are presented with a real object as having properties that it does not have. If olfaction presents no objects then, *a fortiori*, it does not present real objects as having properties, and so it never presents them as having properties that they do not have. But, equally, if it presents no objects then nor does it present us with objects other than those before us, and so it lacks a feature displayed by paradigmatic cases of hallucination. Batty's claim that no objects figure in the contents of olfactory experiences therefore explains why it should be that 'the notion of olfactory illusion is not something that resonates with us' (p. 12) and why 'the traditional distinction between illusion and hallucination does not apply to olfactory experience' (p. 24).

Batty's explanation for the second alleged fact — that olfactory experience cannot 'distinguish between scenes in which the same properties are instantiated but in different arrangements' — is

somewhat less straightforward. It depends on more than just the idea that the content of olfaction is existentially quantified. This is because it *is* possible, while using only existentially quantified representations, to ‘distinguish between scenes in which the same properties are instantiated but in different arrangements’. To represent such a distinction one needs to make use of more than one existential quantifier, and one needs to make use of an expression for non-identity. But Batty will not allow that the content of olfaction includes more than one quantifier. She writes that: ‘while a characterization of the content of olfactory experience may be rich in terms of predicates (as rich as the situation we are in and our discriminatory abilities will allow), it will only ever need one quantifier’ (p. 20). Batty’s view, then, is that the content of an olfactory experience is an unstructured set of properties, represented as being instantiated at approximately the location of the subject. With that restriction on the contents of olfaction in place it would indeed be true that olfaction could not distinguish between scenes in which the same properties are instantiated, but in different arrangements. And so it would be true that olfaction cannot solve the Many-Properties Problem.

Batty’s picture of the content of olfactory experience therefore provides explanations for both of the features that she claims are attributes of olfaction. Neither of those features, however, turns out to be a genuine one.

Consider first the claim that ‘the traditional distinction between illusion and hallucination does not apply to olfactory experience’. This is simply mistaken. There are cases of olfactory misperception that it is natural to characterize as hallucination. There are cases of olfactory misperception that it is natural to characterize as illusion. And there is a clear, and perfectly traditional, difference between them. Batty herself accepts that there are examples of the first sort. ‘We seem to have no problem’, she says, ‘with the idea of an olfactory hallucination’ (p. 12). One such example is that of the phantosmia exhibited as an early symptom by some patients with Parkinson’s disease. Basile Landis and Pierre Burkhard give the following account of such a phantosmia, as experienced by a 57-year-old Parkinson’s patient:

Since 2000, she has complained of abnormal olfactory symptoms characterized by the occurrence of brief, repeated, and stereotyped episodes of strong smell sensations without substrate. Odorant perceptions were difficult to describe precisely and did not correspond to known odors. When prompted, she compared them to perfumes, to a ‘rainy day’, or even to a ‘wet dog’, ascribing them a pleasant aspect. Episodes usually

lasted a few seconds, up to minutes, and could occur many times per day in an unpredictable fashion. Conversely, known odors were perfectly identified, and she denied any subjective smell loss. (Landis and Burkhard, 2008, p. 1237f)

It is surely quite natural to describe this patient as suffering from olfactory hallucinations. That is exactly how Landis and Burkhard do describe her. That is what sixteen of the students in my sample of twenty-two said was the natural description of the case.

It is much less natural to describe these unpredictable episodes of smells, experienced independently of whatever aroma substrates are present in the environment, as olfactory illusions. Only five of the students in my twenty-two student sample claimed to find ‘illusion’ a natural description of the case. Two students weren’t sure how the case should be described.<sup>1</sup>

For an example of the second sort — an olfactory distortion that it is natural to describe as an illusion, but not as an hallucination — consider the following, from the notes accompanying the recipe for ‘Cinnamon and/or Vanilla Ice Cream’ in Heston Blumenthal’s *The Fat Duck Cookbook*:

If you smell cinnamon followed by vanilla-and-cinnamon, what you get is vanilla. And vice versa... Cinnamon and vanilla are particularly good at this...

[A]n ice cream in a glass flanked by two plastic squeezey bottles with conical tops narrow enough to nudge into a nostril... worked really well, and the effect seemed both stranger and even more in need of an explanation when the mouth was involved as well as the nose. I tried it out on some of the regulars at the Fat Duck and it invariably provoked a powerful mixture of amazement that it happened, and curiosity as to why. (Blumenthal, 2008, p. 234)

It seems quite natural to describe the olfactory effect that this dish depends on as an illusion. Seventeen of the students in my sample said that they found that to be the natural description. It seems relatively unnatural to describe the dish as inducing olfactory hallucinations.

[1] Twenty-two undergraduates at the end of an ‘Introduction to Cognitive Systems’ course were asked to fill in a questionnaire. The course from which the students were recruited did not cover material related to olfaction, hallucination, or illusion. The questionnaire presented the two examples discussed here, lightly edited for readability (e.g. in the Parkinson’s case, ‘Odorant perceptions’ became ‘These smell perceptions’, and in the cookbook case ‘what you get is’ was replaced by ‘all you can smell is’). The two examples were each followed by the question: ‘Do you find it more natural to describe this as a case of hallucination, or as a case of illusion?’ Three answers were available to tick: ‘Hallucination’, ‘Illusion’, and ‘Not sure’. Half the students were given the cookbook case first. Half were given the Parkinson’s case first. In both cases the three possible answers were presented in the same order.

Only four students regarded that description as natural. One student was unsure. If we discard data from the three students who were unsure about how to categorize one or other of the cases then a chi-squared test reveals the trend in this data to be a statistically significant one ( $\chi^2 = 11.359$ , d.f.=3,  $P=0.0099$ ).

The difference between the Parkinson's symptoms and the gastro-nomic trickery corresponds to, and is plausibly explained by, what Batty identifies as the traditional distinction between illusion and hallucination: in the illusory case we perceive a real object — the ice cream — as having properties that differ from those it really has. In the hallucinatory case no real object is being misperceived.

This is bad news for Batty's claim that the content of human olfactory experience is never a singular proposition, but only ever 'a very weak kind of abstract or existentially quantified content'. Batty would have us believe that that claim has the virtue of collapsing a distinction that, having no intuitive force, we ought to collapse. Instead her picture robs us of the resources that we need for the drawing of a distinction that *is* intuitively marked.

What, then, of Batty's second alleged explanandum — her claim that 'olfactory experience does not present smells in distinct locations', that smell 'seems disengaged from any particular object', and so that olfaction cannot solve 'the problem of distinguishing between scenes in which the same properties are instantiated but in different arrangements'? Again the consideration of examples calls this alleged explanandum into question.

It may be by smell that I identify that there are traces of garlic on my left hand and traces of ginger on my right. The experience by which I discern that this is so is *not* one in which I find an object-independent disengaged garlic smell to be around when raising my left hand to my nose, and an object-independent disengaged ginger smell to be around when raising my right. Such an experience would be possible, but it would also be peculiar. It is not what we experience in the usual case. In the usual case olfaction presents our two hands as, respectively, the bearers of the two smells.

Batty is led to the mistaken view that object-independent, non-localized content is what we always experience in olfaction because her preferred examples of olfactory experiences are cases in which the thing experienced is extremely pungent: they are cases where a whole room is filled with lemon air freshener and with the smell of fish, or where the smell of coffee pervades an entire space. In these extreme cases it may be that the content of our experience omits information about determinate location. But this is not a general feature of

olfactory experience. Nor is the non-localization of extreme percepts peculiar to the sense of smell. The auditory experience of a fire alarm ringing somewhere in the street may present the sound as coming from one house in particular, but when we are in the corridor where the alarm is loudly ringing the experience is not of the sound as located in any particular location, but of the sound as filling the entire space. Even in the visual domain it may be that a bright strobe light somewhere in the visual field adds a general strobing content to the experience that is not exhausted by the experience of strobing that is tied to a determinate location. It seems, then, to be typical of intense percepts that they are experienced without determinate locations. In an imprecise modality, such as olfaction, the threshold at which localization gives out may be relatively low. Batty's choice of extremely pungent examples therefore leads her to mistake the non-localization of extreme perceptions for a general and peculiar feature of olfaction.

Despite the complication resulting from her focus on cases of extreme pungency, Batty is not wholly mistaken here. She is right to identify 'Many Properties Problems' as marking a point at which there seem to be constraints on the possible contents of olfactory experience. It *does* seem possible, *pace* Batty, to smell that a particular object has an olfactory property. But what does not seem possible is to have a purely olfactory experience that tells one *how many* objects have that property. One may see that two of one's fingers have been painted red, rather than one, or feel that two of one's fingers are being stroked, rather than one, or hear that two of one's fingers are tapping on a resonant surface, rather than one. What one cannot do is to smell, with a single sniff, that two of one's fingers are garlicky, rather than just one finger having received a double dose. If one wants to extract quantitative information from olfaction then multiple sniffs will be required.

To say this, however, is not to find an alternative way of getting to the conclusion that Batty wants. Batty's aim is to show that 'accounts of representational content cannot always be based on the visual model' (p. 11). But to say that olfaction does not give us quantitative information in a single sniff is not to identify a respect in which the content of olfactory experience is unlike the content of vision. In both cases we must accept that the information carried by a single sensory sampling is impoverished relative to the content presented in normal experience. That this is so even in the visual case is one of the less controversial lessons that has been taught to us by the very extensive literature on our inability to recognize changes that occur when we are attending to the wrong thing, or that occur between saccades, or under

the cover of an appropriate mask (Grimes, 1996; Mack and Rock, 1998; Noë, 2002; O'Regan *et al.*, 1999). What is peculiar to the olfactory case is just that in the olfactory case the distinct sensory samplings occur at greater temporal intervals. Batty is therefore right to identify something unusual in the way in which olfaction puts one into sensory contact with the objects around one, but wrong in attributing this peculiarity to a restriction on the logical form of olfaction's content.

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