

# How reliably misrepresenting olfactory experiences justify true beliefs

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Penultimate Draft

## Abstract

This paper argues that olfactory experiences represent their objects as having primitive olfactory properties, which they do not in fact have. Olfactory experiences misrepresent, but since they tend to misrepresent in the same way on multiple occasions, they *reliably* misrepresent. The reliability of olfactory experiences helps explain how they can be useful and lead to true and justified beliefs about putatively smelly objects.

Keywords: olfactory experience, olfaction, experience, justification, belief, misrepresentation, reliable misrepresentation, intentionality, content

## 1 Introduction

Olfactory experiences are the experiences we have when we do what we commonly call “smelling.” For example, when we smell a burning piece of toast, a wet dog, the smoke outside our window, or the sour milk, we have olfactory experiences. This paper is about olfactory experiences, their contents, and how they justify beliefs, such as beliefs about burning toast, wet dogs, and sour milk.

I will argue that olfactory experiences have contents (§2). They represent everyday objects or ad hoc “bare olfactory objects” as having primitive olfactory

properties (§§3.1–3.2). Olfactory properties happen never to be instantiated, so olfactory experiences misrepresent the world around us. However, I will argue, since olfactory experiences misrepresent in the same way on distinct occasions, they *reliably* misrepresent. This provides the basis for an explanation of how, despite misrepresenting, olfactory experiences can not only be useful, but also justify true beliefs about putatively smelly objects (§4).

Before beginning, a brief note about terminology is in order: It is useful to have a fairly neutral and everyday way of describing olfactory experiences without presupposing any particular view of whether they have contents or of what they represent. I will reserve the term “smell” for this use, using it to stand for an act, a property, or an object, depending on context. For instance, we can say that we smell the roses, that the roses smell nice, that the roses have a nice smell, or that we notice a nice smell. “Smell”-talk is neutral on the contents of the states described. For example, saying that Eleni smells the roses does not imply any particular view of the content of her state or even that she has a corresponding contentful state at all.

## 2 Olfactory experiences have contents

Before considering the question of what particular contents olfactory experiences represent, let us first motivate the view that they do represent. This view has received much explicit endorsement (see especially Perkins 1983, Lycan 1996, 2000, Matthen 2005, Batty 2009, 2010a, 2010b, 2010c, 2010d, Richardson 2013, Budek and Farkas 2014, Mizrahi 2014, Roberts 2015, Cavedon-Taylor forthcoming), but it has at least a few detractors (Reid 2002, Peacocke 1983), and Lycan (1996) argues it is far from obvious.

There are various ways of elucidating the notion of content at play here. My favored way is ostensive, relying on introspectively accessible paradigm examples of contentful states, such as thoughts and certain perceptual experiences. For example, thoughts and perceptual experiences, such as visual experiences, seem

to “say”, or be “of” or “about” certain things. For example, a thought that the cat is on the mat might “say” that the cat is on the mat or be “about” the proposition that the cat is on the mat, and a visual experience of a red cup might be “of” or “about” a (putative) red cup or the (putative) fact that there is a red cup. The foregoing mental states are examples of *intentional* mental states, and what they “say”, are “of” or “about”, or, more generally, *represent*, are their *contents*.<sup>1</sup>

I will now motivate the claim that olfactory experiences have contents. I will do so by outlining two key reasons for thinking that visual and other experiences have contents, and arguing that they also apply to olfactory experiences.

That visual experiences, and many other kinds of experiences, are intentional has been argued on phenomenological grounds. Many visual and other experiences seem to present, represent, or “tell us” something. For example, a visual experience of a blue cup seems to represent a cup and a blueness that qualifies the cup, which suggests that it in fact represents a cup or cup-shaped object as being blue.<sup>2</sup> In the same way, olfactory experiences seem to represent objects, such as putatively smelly objects, and qualities that seem to qualify them. For example, an olfactory experience of a basil leaf seems to represent the basil leaf and a basil-y smell that qualifies the basil leaf, which suggests that the olfactory experience represents the basil leaf as having certain olfactory properties. Even olfactory experiences that do not seem to present any everyday objects, such as an experience of a foul smell with an unknown source, seem to tell us *something*

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<sup>1</sup>Note that although our paradigm cases of intentionality are introspectively accessible mental states, this does not mean that all cases of intentionality must be introspectively accessible, or that they must be mental states. There might be introspectively inaccessible or non-mental states with the same feature as our paradigm cases that are not introspectively accessible. Notice also that my definition does not make reference to conditions of truth or reference. This is because that there are such things as conditions of truth or reference is a substantive further claim about the nature of intentionality (see Mendelovici 2018, Ch. 1). However, for the purposes of my discussion, I will assume that intentional states have conditions of truth or reference.

For a more precise ostensive definition of intentionality, see Mendelovici 2018, 2010, forthcoming, and Kriegel 2011.

<sup>2</sup>Such arguments are often made by representationalists, who take phenomenal consciousness to be a species of intentionality. See Harman 1990, Lycan 1996, Dretske 1995, Tye 2000, Mendelovici 2013a, 2014, 2018, Bourget and Mendelovici 2014, and Bourget 2015, 2017, forthcoming .

about the world, even if it is simply that there is a smell present. So, even these kinds of olfactory experiences seem to have contents.

That visual and other experiences have contents has also been argued on epistemological grounds: McDowell (1994) roughly argues that experiences have contents because they justify beliefs and, in order for them to do so, they must have contents. For instance, a perceptual experience of a blue cup before you might all by itself justify the belief that there is a blue cup before you. It is unclear how the perceptual experience can by itself justify the belief if it were a mere sensation or other non-intentional state. But if the perceptual experience has a content like <there is a blue cup before me>, it can justify a belief with this or related contents in the same way that a belief can justify another belief with a related content. Similarly, an olfactory experience of a basil leaf by itself justifies the belief that the basil leaf has a certain smell. This suggests that the experience represents the basil leaf as having particular olfactory properties.

### **3 The contents of olfactory experiences**

In the previous section, I motivated the idea that olfactory experiences have contents. But what exactly do they represent? Since olfactory experiences generally represent (putative) objects as (putatively) having various properties, the question can be divided into two more specific questions, which I will address in the following two subsections:

1. What are the objects represented by olfactory experiences? (§3.1)
2. What are the properties represented by olfactory experiences? (§3.2)

Although much of the literature on the contents of olfactory experiences focuses on the first question, I will focus on the second question, since it is the answer to that question that compels us to say that olfactory experiences generally misrepresent. However, it is still useful to briefly address the first question in order to attain a more complete picture of the contents of olfactory experiences.

Before we begin, it is helpful to clarify the notions of represented objects and represented properties at play: I will take a *represented property* to be a content that can qualify other contents, and a *represented object* to be a content that can be qualified by other contents. For example, a visual experience of a blue ball represents a represented object, such as <the ball>, and various represented properties, such as <blueness> and <roundness>, which qualify <the ball>. Importantly, we can accept that visual experience represent both objects and properties without requiring that represented objects are, contain, or otherwise involve externally existing objects, such as concrete externally existing balls, or that represented properties are, contain, or otherwise involve universals, or other items that might be identified with properties. The distinction between represented objects and represented properties is a superficial distinction between the roles that contents play, not a metaphysical one concerning their deep natures.<sup>3</sup>

### 3.1 The objects represented by olfactory experiences

There are various views of the objects represented by olfactory experiences. One option is to say that olfactory experiences represent everyday objects, like cakes, roses, and burning pieces of toast. Another option is to say that olfactory experiences represent odors, which might be taken to be collections of airborne molecules (Richardson 2013, Cavedon-Taylor forthcoming). Another option is that an olfactory experience represents *some* object as having olfactory properties, but no *particular* object (Batty 2010a). Yet another option is that olfactory objects are the “stuffs” that everyday objects are composed of, rather than the everyday objects themselves (Mizrahi 2014). Sometimes these options are combined: Lycan (1996) claims that every olfactory experience has two olfactory objects, an odor and an everyday object, while Budek and Farkas (2014) take

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<sup>3</sup>Mendelovici forthcoming and 2018, Ch. 1 make a distinction between the deep natures and the superficial characters of contents. Mendelovici forthcoming argues that the debate over propositionalism is best construed as a debate over the superficial characters of contents. The notions of represented objects and represented properties operative in this paper pertain to the superficial character of contents, not their deep natures.

some olfactory experiences to represent odors and others to represent odors as well as the everyday objects that are their sources. In Mendelovici MS, I offer a different combined view, on which some olfactory experiences represent everyday objects, while others represent “bare olfactory objects”, which are ad hoc objects whose sole purpose is to be the bearers of olfactory properties.

Any of these views of olfactory objects is compatible with the main points of this paper. However, in order to develop a full view of the contents of olfactory experience, I will briefly present and overview the motivations for my favored view of olfactory objects, which is defended in greater detail in Mendelovici MS.

My favored view, on which there are two different types of olfactory experiences that differ in their represented objects, can be motivated by a pair of everyday phenomenological observations: First, sometimes we experience objects as having smells, as when a basil leaf smells basil-y. Second, sometimes smells seem to take on a life of their own, leaving their sources far behind, as when the smell of a baking cake travels through the house and out the window.

The first phenomenological observation is that we at least sometimes experience objects as having smells. When we sniff a basil leaf, it seems that it is the basil leaf itself that smells basil-y, and when we smell a rose, it seems that the rose itself has a certain sweet, flowery smell. Our olfactory experiences seem to tell us about features of the basil leaf and rose themselves. Taken at face value, such cases suggest that the objects represented by olfactory experiences are at least sometimes everyday objects like basil leaves and roses.

The case of multimodal experiences involving olfactory experiences also supports the view that the represented objects of olfactory experiences are at least sometimes everyday objects. A multimodal experience of a halved orange might involve visual, tactile, and olfactory experiences representing the halved orange as having various properties, such as being orange, having a particular size, shape, and texture, and having an orange-y citrus-y smell. These properties are all represented as being properties of the same object. Since the properties of

the visual and tactile components of the experience are represented as properties of the halved orange, the object of the olfactory component of the experience is also the halved orange.

One objection to the view that some olfactory experiences represent everyday objects is that we cannot always discriminate between different scenarios in which different everyday objects are causing our olfactory experiences. Batty (2010d, 2011) raises such an objection, arguing that we cannot tell from our olfactory experience alone whether a kitchen is completely filled with air freshener, or whether a spot above the kitchen was missed. However, that we cannot discriminate between two scenarios does not mean that we do not represent one or the other as obtaining. In the case of vision, stimuli reaching our retinas are massively ambiguous in that there are multiple visual scenes that can cause them (see Marr 1982). The visual system does not simply fail to see in cases where it cannot discriminate between different possibilities, but instead makes various “assumptions” about what the visible world is like and uses them to resolve the ambiguity. This shows that, in general, not being able to discriminate between a set of possibilities does not prevent us from representing one of them.

Our second introspective observation is that in some cases, it seems that smells can take on a life of their own, travel through space, and leave their sources far behind. The baking cake’s smell wafts around the room, fills the whole house, and goes out the window. The wet dog’s smell lingers in the foyer, long after the wet dog has gone. Even though one knows what is the source of the smell, one’s olfactory experience seems to represent the smell as existing distinctly, independently of its source. The intuition is clearer in cases where the source of a smell is unknown, as in an example offered by Budek and Farkas (2014) in which you enter a room and are greeted by an unexpected smell. In this case, you do not represent a particular everyday object as having the smell. You just smell the smell. We can call such olfactory experiences *lone smell experiences*.

Taken at face value, lone smell experiences suggest that at least some olfactory experiences represent something that can exist independently from everyday objects like cakes and roses and that is the bearer of olfactory properties. Whatever these things are, they may be experienced as coming from particular everyday objects, as in the case of the baking cake, or they may not, as in the case of the unexpected smell.

Some views of the objects of lone smell experiences take them to be odors (collections of airborne molecules), spatial locations, or portions of air. The problem with these views is that they receive little phenomenological support. Olfactory experiences do not seem to represent the objects of lone smell experiences as having particular molecular properties, so their objects are not odors. Lone smell experiences do not represent portions of space as being smelly, so their objects are not spatial locations. And lone smell experiences can represent smells as moving through the air without representing the air itself as moving, so their objects are not portions of air. (These arguments are fleshed out in Mendelovici MS.)

My suggestion, instead, is that the objects of lone smell experiences are *bare olfactory objects*, objects that are represented as having no properties other than olfactory properties and locations. When we represent a lone smell, we create an ad hoc representation of an object that plays the role of being the bearer of the relevant olfactory properties. These bare olfactory objects are the objects that we commonly call “smells”, as in when we say that there is a smell in the foyer, or that the cake’s smell is wafting out the window.

Before continuing, it is worth considering another alternative view of lone smell experiences, some versions of which are not compatible with my claim in §4 that olfactory experiences are systematically false: This view maintains that lone smell experiences do not represent any objects at all, but instead represent mere olfactory properties (and hence cannot be true or false). In Mendelovici 2013a, 2014, I argue for a similar view of mood experiences on which they represent

mere affective properties, such as elatedness and sadness. However, there are key differences between the two cases that make moods, but not lone smell experiences, amenable to such treatment. Moods do not seem to tell us about how the world is. In contrast, even though lone smell experiences do not tell us about the sources of lone smells, they do tell us *something* about how the world is. At the very least, they tell us that there is a smell, whatever this amounts to. This suggests that lone smell experiences, but not moods, have propositional contents.

Another important difference between the two cases is that lone smell experiences, but not moods, present whatever qualities they present as existing in space. Since it doesn't make sense to represent universal properties as existing in space, this suggests that lone smell experiences, unlike moods, represent their properties as instantiated. Now, in perceptual experience, the way that we generally represent instantiated properties is by binding them to represented objects. So, we represent contents of the form  $\langle o \text{ is } F \rangle$ , rather than  $\langle F \text{ is instantiated} \rangle$ , the latter of which does not involve the representation of an object. This makes sense, since it is arguably less demanding to perceptually represent  $\langle o \text{ is } F \rangle$  than it is to perceptually represent  $\langle F \text{ is instantiated} \rangle$ ; the latter content, but not the former, requires a special representation of instantiation, which requires either a concept of instantiation or a special non-conceptual representation of instantiation. So, we might expect that lone smell experiences, which can be had by relatively unsophisticated thinkers such as young children, have the form  $\langle o \text{ is } F \text{ and at } L \rangle$  rather than  $\langle F \text{ is instantiated at } L \rangle$ . This supports the view that lone smell experiences represent ad hoc objects as having olfactory properties rather than the mere instantiation of olfactory properties.

In summary, olfactory experiences represent either everyday objects or bare olfactory objects as having olfactory properties.

## 3.2 What properties do olfactory experiences represent?

Let us now turn to the question of what olfactory properties are, i.e., of what are the properties represented by olfactory experience.

As Batty (2010b) notes, the options here correspond to the options in the debate on the contents of perceptual color experiences. Here are three main options:

**Physicalism:** Olfactory properties are mind-independent physical properties of olfactory objects, such as molecular properties.

**Relationalism:** Olfactory properties are relations between olfactory objects and minds, such as dispositions to cause certain kinds of mental states in subjects.

**Primitivism:** Olfactory properties are primitive properties.

I will argue in favor of primitivism about olfactory properties. The problem with the alternative physicalist and relationalist views is that there is a mismatch between the contents they ascribe to olfactory experiences and the contents supported by pre-theoretic considerations, considerations that are independent of any theories of intentionality or views of the particular contents of particular states. This problem is the *mismatch problem*. Primitivism, in contrast, ascribes contents that are supported by pre-theoretic considerations. The argument presented here is a special case of a general form of argument from the mismatch problem, which I've developed elsewhere in greater detail.<sup>4</sup>

Let us consider physicalism. According to physicalism, olfactory properties are mind-independent physical properties that are represented as being had by olfactory objects. One natural physicalist view is that these properties are the

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<sup>4</sup>See especially Mendelovici 2018, but also Mendelovici 2014 for an application of the mismatch problem to moods and emotions, and Mendelovici and Bourget 2014, forthcoming, and Bourget and Mendelovici 2014 for overviews of the mismatch problem. See also Pautz (2006, 2013) for the structural mismatch problem for tracking representationalism, which is the problem of there being a mismatch in the relations of similarity and difference between what a set of representations represent and the relations of similarity and difference between the items that they track.

molecular properties that are the categorical bases of smelly objects' dispositions to cause olfactory experiences in us.

The problem with this view is that pre-theoretic introspective and epistemological considerations tell against it. What we introspectively notice when we smell a halved orange is not a particular configuration of molecules or some other related physical property. Such properties form no part of our phenomenology. This is evidenced by the fact that we cannot tell through introspection alone which particular molecular or other physical properties particular smells are, or even that smells are molecular or other kinds of physical properties. Instead, what we introspectively notice when we introspect on our olfactory experience of the halved orange is a sweet, tangy, and orangey smell. This intangible and difficult-to-describe smell is nowhere to be found in the molecular properties or other physical properties that the physicalist might identify with olfactory properties. In short, the contents ascribed by physicalism do not match the contents supported by introspective considerations.

Our epistemological situation provides further considerations against physicalism: From olfactory experiences alone, we are not justified in inferring that olfactory objects have or involve certain molecular properties or other kinds of physical properties. Such inferences would involve a leap, going beyond the evidence provided by our olfactory experiences. But if olfactory experiences did represent the relevant physical properties, then we should be justified in making such inferences on the basis of olfactory experience alone. In contrast, it seems we are justified in believing that olfactory objects represent difficult-to-describe smells like the sweet, tangy, and orangey smell mentioned above. In sum, the contents ascribed by physicalism do not match the contents supported by epistemological considerations.

There are two parts to the mismatch problem: First, the physicalist view attributes contents to olfactory experiences that they do not have, namely contents having to do with molecular properties or other physical properties.

This is an *error of commission*, since the problem is that physicalism includes material in the content of olfactory experiences that it is inappropriate to include. Second, the physicalist view fails to attribute contents to olfactory experiences that they do in fact have, such as the sweet, tangy, and orangey smell involved in the olfactory experience of an orange. This is an *error of omission*, since the problem is that the physicalist's description of the content of olfactory experiences inappropriately leaves something out. Both problems show that the physicalist view delivers the wrong answers: the properties physicalism takes olfactory experiences to represent are not identical to the properties they in fact represent, which means that the physicalist view is false.

Similar arguments can be used to argue against the relationalist view of the properties represented by olfactory experiences. According to relationalism, olfactory properties are relational properties, and minds, subjects, organisms, or states of minds, subjects, or organisms are one of the relata. The problem is that introspective and epistemological considerations suggest against taking the properties represented by olfactory experiences to be such relational properties. When we introspect upon olfactory experiences, we seem to experience everyday objects or bare olfactory objects ("smells") themselves as having olfactory properties independently of us. We do not experience olfactory properties as somehow attaching to both us or something to do with us and external olfactory objects, which might be everyday objects or bare olfactory objects. Indeed, on the relational view, olfactory experiences represent at least two objects: us or something to do with us and external olfactory objects. But there is little introspective reason to think that we or something to do with us are objects of olfactory experience.

Epistemological considerations also suggest against the view: from olfactory experience alone, we are not justified in drawing conclusions about our relations to external olfactory objects. Of course, from your olfactory experiences, you might infer that you have olfactory experiences, and from this belief and the

belief that external olfactory objects cause your olfactory experiences, you can infer that your olfactory experiences are causally related to external olfactory objects. So, perhaps olfactory experiences do play a role in justifying beliefs about our relations to olfactory objects. However, your belief about your relation to external olfactory objects is not justified by your olfactory experience alone in the way that would be predicted by the relational view. It is justified by a combination of (perhaps your knowledge of) the fact that you have an olfactory experience, regardless of its content, together with an auxiliary belief about the causes of olfactory experiences. But if the relational view were true, such conclusions should (also) be justified by the contents of olfactory experiences. Olfactory experiences should “say” that you are related to external olfactory objects in such-and-such ways, and this should justify your conclusion that you are thus related to them.

The above discussion shows that the relational view clearly makes an error of commission: it includes in the content of olfactory experiences material that should not be included. It is less clear, however, that it makes an error of omission. Whether it does depends on whether, say, the sweet, tangy, and orangey smell that we experience when we smell an orange can be found in the relational contents attributed by the relationalist. This will depend on the particular relationalist view. On a relationalist view on which the relational contents are, say, dispositions to cause behavioral reactions in us, it is doubtful that anything in the picture can capture the sweet, tangy, and orangey smell we experience, and the view will make an error of omission. But a relationalist view taking the relevant contents to be dispositions to cause phenomenal experiences in us might plausibly capture the sweet, tangy, and orangey smell in the relevant phenomenal experiences, so it avoids an error of omission. Such a view still faces the problem of commission, however, since the extra relational material it includes in its account of olfactory properties does not match the contents we have introspective and epistemological reasons to ascribe. It is also not clear

what would motivate such a view over the primitivist alternative described below, other than the desire to avoid the error theory that (as we will see) primitivism leads to. As we will see in the next section, it is not clear that there is good reason to reject an error theory.

Unlike physicalism and relationalism, primitivism does not face the mismatch problem. Primitivism takes olfactory experience at face value, taking the properties represented by olfactory experiences to be just what they appear to be and not something else: properties like the sweet, tangy, and orangey smell we experience when we sniff the halved orange. These primitive olfactory properties are *sui generis* (not reducible to non-olfactory properties), categorical (not dispositional), non-relational, and non-mental properties. These are the contents revealed by introspection of olfactory experiences. These are also the contents that justify inferences based on olfactory experiences. From an experience of a halved orange as having a sweet, tangy, and orangey smell, we justifiably infer that the halved orange has a sweet, tangy, and orangey smell. The property the inferred belief ascribes to the halved orange is a *sui generis*, categorical, non-relational, and non-mental property.<sup>5</sup>

One key objection to these arguments is that olfactory experiences represent their contents in special ways that make these contents introspectively inaccessible and block our using them to draw content-appropriate inferences.<sup>6</sup> For instance, perhaps olfactory experiences represent their contents under special guises, or special modes of presentation. When we introspect upon them, what we notice are these modes of presentation, not their contents. And when we draw an inference from them, what we base our inference on is the modes of presentation, not the contents. For example, one might say that an olfactory experience of a

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<sup>5</sup>Perkins (1983) defends a related projectivist view of olfactory experiences, on which they represent properties of experiences that we mistakenly project onto the world. While such a view avoids the mismatch problem, it is unnecessarily stronger than the alternative primitivist view I am defending in that it requires that olfactory properties be instantiated in the mind, whereas the primitivist view I am defending allows that they are represented whether or not they are instantiated anywhere.

<sup>6</sup>I consider these and other objections to the mismatch problem in greater detail in Mendlovici 2018, Ch. 3.

halved orange represents the halved orange as having a physical property, but it does so under a special “sweet, tangy, and orangey” mode of presentation, which is what we introspect upon and reason upon.

One problem with this proposal is that it risks making it unmotivated to attribute contents to olfactory experiences. Recall that the key reasons to take olfactory experiences to have contents were introspective and epistemological reasons (see §2). We introspectively notice that olfactory experiences “say” something, and olfactory experiences play certain roles in justifying inferences. If modes of presentation do all the work in accounting for what is introspectively accessible and in licensing inferences, then there is little motivation for taking olfactory experiences to also have contents. Indeed, it seems that on this picture, modes of presentation play the role of contents (see our definition of “intentionality” in §2), so they would simply *be* contents (and, for the reasons discussed above, they would have to be primitivist contents), and there would be little reason to ascribe any additional contents that physicalism or relationalism are true of to olfactory experiences.<sup>7</sup>

We are considering the objection that olfactory experiences represent their contents in special ways that make them introspectively inaccessible and that block our using them to draw content-appropriate inferences. Another version of this objection takes olfactory experiences to represent olfactory properties *nonconceptually*, that is, in a way that does not require having any concepts. Perhaps nonconceptually represented contents cannot be discerned by introspection and cannot license inferences to beliefs with conceptually represented contents, even when the conceptually and nonconceptually represented contents are the same.

One problem with this suggestion is that it is not generally true that non-conceptual contents cannot be discerned by introspection or that they cannot

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<sup>7</sup>This does not mean, of course, that there would not be reasons to ascribe distinct *referents* to olfactory experiences, where referents are the external items that contents pick out. However, it is not clear that the referents would be physical or relational properties either, unless we allow an intentional state’s referents to be wholly independent of its contents.

justify inferences to conceptually represented contents. Visual experiences of shapes represent particular shapes nonconceptually, since we needn't have shape concepts in order to have them. But visual shape experiences are accessible to introspection. We can tell from introspection that a particular visual shape experience represents a circular shape rather than a square shape. And visual shape experiences can justify beliefs about shapes, which presumably involve conceptual representations of shapes. For example, from a visual shape experience of a square before you, you might justifiably infer that there is a square before you. In order for the nonconceptual content reply to help the physicalist or relationalist about olfactory properties, there would need to be a special reason to think that nonconceptual contents prevent olfactory properties from being discernable to introspection and from licensing inferences to related beliefs.

There's another problem with the suggestion relying on nonconceptual representation: It is arguably a datum that olfactory experiences have contents that are introspectable and that play a role in justifying conceptual states, such as beliefs (see §2). Even if we accept some "hidden" nonconceptual physicalist or relationalist contents, we should also accept primitivist contents. But then it is unclear why we should also accept the "hidden" physicalist or relationalist contents at all.

## 4 False olfactory experiences, true beliefs

I have argued that olfactory experiences represent everyday objects or bare olfactory objects as having primitive olfactory properties. In this section, I will argue that olfactory experiences reliably misrepresent: they get things wrong in the same way all the time.<sup>8</sup> This might be thought to prevent them from justifying true beliefs about the properties of apparently smelly objects, but I will argue that it does not.

Presumably, the primitive olfactory properties represented by olfactory expe-

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<sup>8</sup>See Mendelovici 2013b, 2016, and 2018 for related discussion of reliable misrepresentation.

periences are never instantiated in the actual world. The halved orange doesn't *really* have a sweet, tangy, orangey smell. Instead, it has certain physical properties and certain dispositions to affect us in certain ways. So, our olfactory experiences generally misrepresent. The result is an error theory, one on which olfactory experiences generally misrepresent the world around us.

One might worry that an error theory is incompatible with the role that olfactory experiences play in justifying beliefs about the sources of smells, which often turn out to be true. For example, suppose I take a whiff of a halved orange and experience a sweet, tangy, and orangey smell. From this olfactory experience, I might truly and justifiably conclude that the orange is ripe. Similarly, I might smell a smokey, cigarette-y smell. From this experience, I might truly and justifiably conclude that someone is smoking nearby. I want to suggest that an error theory about olfactory experience is perfectly compatible with such cases in which we use our olfactory experiences to make true and justified inferences.

The key point is that although olfactory experiences misrepresent, they *reliably* misrepresent, in that they misrepresent in the same way in similar circumstances. When presented with a halved orange with particular molecular properties on multiple occasions, we misrepresent it as having the same sweet, tangy, orangey smell each time. The fact that olfactory experiences *reliably* misrepresent explains why they are so useful despite being false.

As I've argued elsewhere (Mendelovici 2013b), mental states that reliably misrepresent can nonetheless help us perform various cognitive tasks. This is also true specifically of olfactory experiences. For instance, olfactory experiences that reliably misrepresent can help us discriminate between different kinds of items. We can tell the difference between fresh and sour milk on the basis of our olfactory experiences alone, even though we misrepresent both fresh and sour milk samples as having olfactory properties they do not have. Olfactory experiences that reliably misrepresent can also help us identify particular objects or kinds of objects. For example, on the basis of our olfactory experiences alone,

we might be able to tell that there's butter chicken cooking in the kitchen, even though we misrepresent the butter chicken as having olfactory properties it does not have. Similarly, a father might correctly identify his newborn baby on the basis of smell alone, even though he reliably misrepresents her as having olfactory properties she does not in fact have. Mere reliability, even in the absence of veridicality, is useful for many tasks.<sup>9</sup>

The above examples also show that olfactory experiences that reliably misrepresent can lead us to true conclusions. Your false olfactory experience of a glass of milk might nonetheless causes true beliefs about whether the milk is fresh or sour. Your false experience of that characteristic butter chicken smell allows you to correctly infer that butter chicken is cooking in the kitchen.

This does not yet show that inferences involving mental states that reliably misrepresent are ever justified. Even if your olfactory experience of an orange as sweet, tangy, and orangey causes you to truly believe that the orange is ripe, this is not enough to conclude that the inference is justified. After all, not every true inference we make or are disposed to make is justified. And in the case of olfactory experiences, there is special reason to think that the relevant inferences might not be justified: the inference's premises do not seem to support its conclusion. It seems we are reasoning as follows:

**P1.** The orange is sweet, tangy, and orangey. (content of olfactory experience, false)

**C.** The orange is ripe. (content of belief, true)

The problem is that an orange's having a particular primitive olfactory property does not entail or make it more likely to be true that the orange is ripe. Now, I want to acknowledge that in some cases, we might be making inferences like

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<sup>9</sup>This provides a response to arguments against error theories on the basis of the general well-functioning of our olfactory systems. Batty writes: "Widespread error on the part of the olfactory system does not accord with its being a functioning olfactory system and this is a consequence we ought to avoid both for intra- and inter-species considerations." (Batty 2010b, p. 1153) However, as we've seen, when accompanied by reliability, widespread error *does* accord with the general well-functioning of the olfactory system.

these, and that in such cases, our inferences are not justified, even though our conclusions might be true. But I also want to suggest that in other cases, there is an implicit bridge premise in our reasoning that, together with the content of the olfactory experience, justifies our conclusion. This implicit bridge premise links the olfactory properties that our olfactory experience ascribes to its object (like that of having a sweet, tangy, and orangey smell) to the non-olfactory properties our conclusion ascribes to the object (like that of being ripe). In the case of our inference based on the olfactory experience of the halved orange, our reasoning might go like this:

**P1.** The orange is sweet, tangy, and orangey. (content of olfactory experience, false)

**P2.** Oranges that are sweet, tangy, and orangey are likely to be ripe. (content of implicit bridge premise)

**C.** Therefore, the orange is ripe. (content of belief, true)

P2 is our implicit bridge premise. From P1 and P2, we can justifiably infer C, since P1 and P2 together make C more likely to be true. If we do in fact at least implicitly accept such bridge premises, false olfactory experiences can indeed help justify true related beliefs.<sup>10</sup>

It is not implausible that we do accept such premises in many cases. Someone who infers C from P1 is likely to at least implicitly believe P2. She likely takes the sweet, tangy, and orangey smell to be a sign of an orange's being ripe, and this is likely to be because she takes it to be a general truth that oranges that are sweet, tangy, and orangey are ripe. It is not hard to see how we might come to have beliefs like P2, and how these beliefs might come to be justified: since olfactory experiences *reliably* misrepresent, we are likely to be confronted with

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<sup>10</sup>In Mendelovici 2018, Ch. 7, I argue that thoughts generally originally represent different contents than experiences, though they can derivatively represent many of the same contents thanks to their relations to experiences. If this is right, then the contents <sweet, tangy, and orangey> and <smokey and cigarette-y> are originally represented in P1, but derivatively represented in P2.

strong inductive evidence that sweet, tangy, and orangey smelling oranges are ripe, and little disconfirming evidence. Every sweet, tangy, and orangey orange we seem to encounter is ripe, and no unripe oranges we encounter are sweet, tangy, and orangey. And, so, we might justifiably come to believe that oranges that are sweet, tangy, and orangey are ripe.

If we understand P2 as stating that all or most oranges that are sweet, tangy, and orangey are likely to be ripe, it is trivially true, since there are no oranges that have the relevant olfactory properties. But if we understand P2 as stating a counterfactual-supporting law, such that its truth would require that any actual or merely possible oranges that are sweet, tangy, and orangey are likely to be ripe, then it is most likely false. There is no reason to think that merely possible oranges with the relevant primitive olfactory properties would be more likely to be ripe than oranges without these properties. For our purposes, it doesn't matter which implicit belief we are most likely to have in such cases, since either way of understanding P2 would allow it to help P1 justify C.

Olfactory experiences representing bare olfactory objects can similarly justify related beliefs. Suppose you notice a smokey, cigarette-y smell, but do not experience it as attaching to any everyday object. We might reason to the conclusion that someone is smoking nearby as follows:

- S1.** There is a smokey and cigarette-y smell located around here. (content of olfactory experience, false)
- S2.** When there is a smokey and cigarette-y smell at a location, it is likely that there is someone smoking near that location. (content of implicit bridge premise)
- SC.** Therefore, someone is smoking near here. (content of belief, true)

It is likely that someone who infers SC from S1 at least implicitly believes S2. Again, S2 is either trivially true or false, since, strictly speaking, there are no smokey, cigarette-y smells. But S2 nonetheless helps S1 justify the true belief,

SC.

I have argued that even though olfactory experiences misrepresent, they can lead us to true and justified beliefs about the sources of smells. Since they *reliably* misrepresent, they can lead us to true beliefs about the sources of smells, and since we sometimes at least implicitly accept bridge premises like P2 and S2, many of these beliefs are justified.

## 5 Conclusion

I have argued that olfactory experiences represent everyday objects or bare olfactory objects as having primitive olfactory properties, which they do not in fact have. Olfactory experiences misrepresent, but since they tend to misrepresent in the same way on multiple occasions, they reliably misrepresent, which explains how they can be useful and lead to true and justified beliefs.

It is sometimes thought that since perception is useful in helping us get by in the world and acquire true and justified beliefs, it is generally veridical. This kind of reasoning can lead us to reject error theories of various kinds of perceptual experiences, which might otherwise be well motivated. But we've seen that experiences that don't just merely misrepresent, but instead *reliably* misrepresent, can be useful and help us acquire related true and justified beliefs. For many purposes, being reliably wrong is just as good as being right. If what is true of olfactory experience is true of many other types of experiences, as I've argued elsewhere (Mendelovici 2018, Ch. 3, 2014, 2013a), this suggests a picture of perception on which perception provides us a model of the world that is largely non-veridical, but that corresponds in a systematic way to how things actually are, and that can be used to successfully guide our behavior and draw true and justified inferences about the world.

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