

Natural Acquaintance

0. Introduction

Though many philosophers find it phenomenologically plausible that we enjoy acquaintance, many also doubt that acquaintance is compatible with a naturalistic approach to the mind. This leads physicalists to deny that we have acquaintance, and to dismiss its phenomenological manifestation as a cognitive illusion. Anti-physicalists, for their part, have employed the phenomenological plausibility of acquaintance in arguing against physicalism. By offering a natural model of acquaintance, I show that none of this controversy around acquaintance is warranted.

In §1 I narrow down the kind of acquaintance that interests me, and in §2 note some of its key epistemic and metaphysical features. §3 explores what I claim is a promising metaphysical framework for naturalising acquaintance, higher-order theories of consciousness. I argue that extant higher-order theories are unable to capture acquaintance's key features, and diagnose this failure as largely due to their use of representation as a naturalistically acceptable means of supplying mental content. Finally, in §4 I set out my own, non-representational, variant of a higher-order theory, and explain how it successfully approximates acquaintance. Since my model is capable of physical implementation, this proves that acquaintance is naturalisable.

This result does not show that acquaintance in fact involves no non-physical goings-on, for that depends on how acquaintance is actually implemented. For all I say here acquaintance may be realised in non-physical materials in our world—e.g. if its actual relata are physically irreducible. At this stage, we just don't know. But what is shown is that nothing in the debate around naturalism and physicalism hangs on whether one posts acquaintance as such, because the acquaintance relation *could* perfectly well be given a physical implementation. Whether acquaintance, in addition, *is* wholly physical waits on the truth of physicalism. But it is not physicalism's truth that waits on the status of acquaintance; acquaintance itself is quite neutral on that issue.

1. *Acquaintance - Preliminaries*

Acquaintance as Russell explains it concerns *consciousness*—what it is like to be you at a given time. There is something it is like to be you, and there is something it is like to be me. Assuming panpsychism is false, there is nothing it is like to be a chair.¹ What it is like to be you is characterised, at least partially, by a set of sensory qualities, things like the colours you visually experience and the bodily sensations you feel. You are aware of a different set of these properties at this moment to those I experience, and that is part of what makes us two different subjects with two distinct conscious perspectives on the world. To a first approximation each of us has an *awareness*, and within the purview of each awareness different sets of *sensory qualities* enter at a time and over time. Consciousness can be conceptually analysed into these two components, as an *awareness of qualitative content*. Though there is obviously more to conscious mentality than sensory states, even when perceptual states are included along with the sensory, I will focus on standard sensory qualities to make my points. In so far as there is something it is like to have a thought, say, that goes beyond sensory qualities, I take what I say to apply *mutatis mutandis*.²

In the relevant Russellian sense, to say you are acquainted with *x* implies that you are conscious of *x*.³ You might infer, or be told, that you are angry at a colleague based on your irascible behaviour, but that form of awareness is quite different to being conscious of, acquainted with—actually feeling—the anger. For Russell acquaintance was the peculiarly direct form of awareness each of us bears to his or her own *sense-data*, which are inner objects possessing the aforementioned sensory qualities, and which make up the contents of consciousness.⁴ For present purposes I eschew sense data, and will talk neutrally of (instances of) *qualities* we know through experience, what I called sensory qualities, and what philosophers call *phenomenal qualities*: e.g. redness,

¹ This sense of something-, or what-, it-is-like-ness, commonly invoked in explication of consciousness, is often traced to Nagel (1974).

² For arguments that thoughts have a proprietary 'cognitive' phenomenology, see Pitt (2004), Strawson (2008), and Montague (2015).

³ Or have been—Russell believes we can be acquainted with the contents of memories. I will not explore this claim.

⁴ It is, says Russell, direct awareness of the sense-datum object (1910-11: 108).

itchiness, cold.⁵ I will assume without argument that a phenomenal quality can exist, and exist intrinsically unchanged, whether experienced or unexperienced.⁶ In other words phenomenal qualities are not essentially phenomenal, though they are essentially qualitative. This is one reason why I favour the term 'sensory qualities'.

On the other side of the acquaintance relation are *subjects*. I will talk in those terms without trying to say just what a subject is. Minimally, a subject is a being with conscious states: states such that there is something it is like to have them.

I agree with Russell that we cannot be acquainted with items outside the head. What I think we can be acquainted with are sensory states and their properties, in consciousness. I will not consider our alleged acquaintance with *conscious states*; that is, states that are already conscious, and where we perform, beyond whatever operation makes them conscious, a further act of acquaintance. Even if we can be acquainted with such states, which I doubt, this presupposes a more basic kind of acquaintance, simply that involved in consciousness of a sensory state in the first place. On this understanding being acquainted with an already conscious state demands two acts of acquaintance.⁷ The acquaintance I am interested in is what goes with our being conscious of a sensory state *at all*.^{8,9}

⁵ This fits with Russell (e.g. 1912), who allows acquaintance with properties of sense-data, like a table's brownness.

⁶ Russell purportedly offers some argument for this claim, to the effect that sensory qualities are logically independent of the subject (e.g. 1917: 112), but as independent arguments they are unconvincing. See Rosenthal (1991) for empirical arguments.

⁷ Russell calls this 'acquaintance with the present experience', and, more perspicuously, 'experience of experiencing' (1914: 443). I do not believe, as do Zahavi and Kriegel (2015) Strawson (2015), and Brentano (1875/1995), that every experience comes with experience of that very experience (for some criticism of this 'self-intimation' doctrine see Coleman 2016). I also deny a doctrine popular amongst advocates of acquaintance, including Russell, that we are acquainted with acquaintance itself. My main reasons are phenomenological: I do not find acquaintance in awareness, and I have no idea what it would feel like if I did (in addition to finding the sensory qualities with which I am acquainted). It is rather the way I am aware of sensory qualities, how they seem to be present to me, that makes me a believer in acquaintance. It might sound strange to say that I infer I have acquaintance, but I am happy to say it.

⁸ With Howell (2008: 132) I think what is of interest about consciousness arises well before we turn to take any mental or introspective *stance* on conscious states.

I will not be discussing introspection either. People have wondered whether in introspection we are acquainted with experiences, which might provide a sure foundation for phenomenal judgements.¹⁰ I am not wholly certain what introspection is meant to be, though of course we can make judgements about consciousness. These are not immune to error, and if they are less error-prone than judgements about the non-mental that is probably only due to the proximity of what we judge about.

So: I am interested in acquaintance as an especially direct relation we bear to a sensory state, or at least to its properties, most importantly its sensory qualities, simply in being conscious of it. That is my target. People rejected Russell's acquaintance because its special features, and its association with the sense-data doctrine, ill fitted the prevailing physicalist-empiricist-reductionist tenor of the twentieth century. Interestingly, philosophers have been more willing to accept that we might be acquainted with items *outside* the head, in 'direct perception'. I will not discuss that topic, though it is intriguing that some find it more plausible that we might bear such an intimate relation to the properties of buses and prickly cacti than to our own brain states.¹¹ Regardless of that, my aim will be to re-habilitate Russellian acquaintance, offering it a respectable home in the brain.

2. Acquaintance – Key Features

Consider a visual experience of a homogenous purple field, like that produced by seeing a purple painted canvas from close enough that purple fills your vision. I assume that the homogenous purple quality-field you visually experience is really an inner property of you. As well as whatever else occurs—conceptualisation, judgement, memory—I say that you are acquainted with the

⁹ It is still true in a sense that we are acquainted with conscious states, but only because acquaintance goes with their being conscious: these are not states that are *already* conscious. Similarly, for Russell, we are acquainted with what is *presented to us*, but only because presentation is the flip-side of acquaintance: it is not that something is first presented and then becomes the object of acquaintance. For me consciousness is the relevant flip-side.

¹⁰ See e.g. Gertler (2012).

¹¹ For doubts about the direct perception relation see Coates (2007).

purple quality instance. It is there, for you, in a peculiarly direct way. Metaphysically it is not in virtue of being aware of something else that you are aware of the purple—so you are aware of it in that sense directly.¹² This metaphysical intimacy grounds direct cognitive access to the purple quality: what you access is simply the purple as it is, unembellished and unreported. When we talk of ‘acquaintance’ as a mental item it has this dual metaphysical and epistemic status: acquaintance is a something, and it also gives something to us, connects the mind to something else—which sorts of connection, whether direct or indirect, we call knowledge.

Following Russell, I think that acquaintance with the purple counts as a basic sort of knowledge. One reason for saying this is that this episode of acquaintance cuts down epistemic possibilities for you, i.e. ways the world could have been for all you were aware. Prior to the experience—literally *a priori*—it could have been green or blue or black present to you—there is an epistemic scenario corresponding to each of these colours.¹³ But in fact it is purple, and in the core sense of being aware of it, you *know* it to be purple and not any other quality. Knowledge has the essential function of narrowing down possibilities for the subject; and sheer acquaintance awareness of purple, as opposed to any other colour, fulfills this role. Note, for comparison, that *my* being acquainted with purple narrows nothing down for you. Nor does something’s simply *being* purple, outside of anyone’s awareness. The first of these comparison cases involves knowledge, because my acquaintance narrows things down for me. The second case, as far as described, lacks knowledge altogether. Of course we can still have propositional knowledge about things of which we, and even all other people, are currently unaware. The present point is that with the coming and going of acquaintance comes and goes a certain other kind of knowledge.¹⁴ Acquaintance is something more than the brute specific being of some thing, but

¹² Nor, as Russell (1912, Ch. 5) stresses, is acquaintance mediated by inference or knowledge of truths.

¹³ For the notion of epistemic scenarios, and their relation to possible worlds, see Chalmers (2011).

¹⁴ Contrast with Balog (2012), for instance, who seems to think the basic form of knowledge of our sensory states through experience is conceptual (albeit non-inferential and ‘direct’).

something less than the explicit framing of that thing in propositional terms by the subject. It is a cognitive impact on the subject of an in-between kind.

As such, acquaintance, though not itself propositional knowledge, is clearly an enabler of, a way into, propositional knowledge: knowledge of truths. Direct awareness of an existent puts one in a position, at least, to know truths about that thing.¹⁵ This is not to say that you do not have any propositional knowledge with acquaintance, and perhaps you always do.¹⁶ But whatever you get, the most basic thing you get is knowledge of the purple in the sense of being acquainted with it, grasping it, mentally meeting it, which is not knowing that such-and-such is true of it.

Nor is acquaintance conceptual—one can surely be aware of a colour without having the concepts COLOUR, SHADE, PURPLE etc. I need not classify it.¹⁷ It is not presented, let alone represented, under a guise. It is just there. Even a demonstrative conception requires me already to be acquainted with the colour, in order to have something to demonstrate.¹⁸ This is not to deny that we routinely classify, or that such classifications can affect the overall character of experience. Perhaps for humans conceptualisation of experiences is unavoidable. But I suspect that experience is in its core non-conceptual, and I maintain that

¹⁵ Tye (2009: 102). Cf. Wishon (201X Frege) on Russell on this point.

¹⁶ Russell (1912: 46): 'it would be rash to assume that human beings ever, in fact, have acquaintance with things without at the same time knowing some truth about them.'

¹⁷ The content of such a state is not one regarding which the subject need possess relevant concepts (Tye 1995: 139). Feigl (1958) believes all grasp of colour is classificatory, hence conceptual, requiring explicit grasp of the similarity and difference relations in which a given colour stands. The ontological point subserving this claim seems just: that the being of a colour in fact consists in, or does not outrun, its relations to other colours. But that this ontological complexity must be explicitly registered by the subject in simple consciousness of the colour, that she must possess correspondingly complex mental *terms*, seems a further claim that can be resisted, e.g. on phenomenological grounds. Similarly, Russell (OKEW: 145) rules that classificatory knowledge concerning colours is propositional, hence not given in acquaintance: we can know (acquaintance-wise) different colours without knowing (propositionally) that they are different.

¹⁸ Tye (2009: 136) makes this point.

the acquaintance with sensory qualities it involves counts as a form of knowing.¹⁹ I will say more about the place of concepts shortly.

It is tempting to express the fact that nothing mediates your awareness of the purple by saying that there is '*nothing between*' your awareness and the purple. But it is not that there is a gap between them, either. Rather, at least this is somewhat how it seems, the purple is jammed right up 'against', even somehow 'into', your awareness.²⁰ We can say, in a sense to be elucidated, that the quality instance you are aware of and your awareness of it are *not wholly ontologically distinct items*.²¹ *Prima facie* they are distinct in some way: on the assumption that your present awareness can take in other qualities in place of this one, your present awareness and the quality presently experienced can come apart.²² The alternative is that each awareness of a distinct quality is itself numerically different; in that case the present awareness and its qualitative object are inseparable. But if present awareness cannot survive its present qualitative object, it would seem that there could not easily be an awareness of a change in experienced qualities. I will therefore suppose a good case for distinctness—the idea that this very awareness can survive this experience of this quality.²³ Given that supposition, we seek a relationship between quality and awareness on which they are not identical, nor yet wholly separate—whatever that quite means!

Of a colour we are acquainted with, Russell says:

so far as concerns knowledge of the colour itself, as opposed to knowledge of truths about it, I know the colour perfectly and

¹⁹ For a view of *perception* as non-conceptual knowledge, see Hoffman (2014).

²⁰ There are those who think sensory qualities are mere modes of awareness. I set aside this view, which I think is false—or worse, unhelpful. That construal of awareness prevents acquaintance being a cognitive achievement, in the sense explained below.

²¹ Cf. Kriegel (2009: 109).

²² I also assume that a sensory quality can exist unconsciously, so can come apart from awareness in that way.

²³ *Experiences* seem plausibly not to be independent in this way, but tied to their qualities essentially.

completely when I see it, and no further knowledge of it itself is even theoretically possible.

If he learns truths about the colour these, Russell re-affirms, 'do not make me know the colour itself any better than I did before.'²⁴ Russell has been read as asserting here the thesis of *revelation*: that one knows a quality through and through in acquaintance, in a way that cannot be improved upon, such that it has no hidden aspects at all. I want to adopt this thesis in qualified form. It does seem possible in principle to be acquainted with a wholly simple quality instance, taking it in in its entirety. But it is unlikely that such 'full revelation' is guaranteed by acquaintance; one can be acquainted with *x* without *x* being fully revealed, in other words. There are two reasons to qualify revelation: a quality may have *breadth*, and it may have *depth*, that elude full grasp. These features flow from the ways in which the qualities we typically experience are complex.

Breadth first: The fact is, a quality can be experienced without all of it being experienced, because it has extension—multiple qualitative parts.²⁵ Naturally, that portion of the complex quality outside of acquaintance is not conscious, so the upshot is that a multi-part quality can be *partly* in consciousness. Consider a feeling familiar to academics: a pervasive background stress, perhaps focused on a paper due for a short deadline against a large marking load. You are aware of this feeling during the day, going about life. But you do not pull the whole thing into view; that would be disruptive. I pull such feelings fully into view, to consider and dispose of them, in bedtime meditation. This is something like the difference between glancing at a book's spine and opening it to have a good browse. During the day you are often aware of the 'edge' of the feeling, enough to mark it as a background state of tension, not enough perhaps to identify its intentional object. When perusing it at leisure, all its extent and richness come

²⁴ (1912: 46-7).

²⁵ Broad says the same thing about sense-data: 'a sense-datum with which I am acquainted may perfectly well have parts with which I am not acquainted. If therefore I say that a given sense-datum has no parts except those which I have noticed and mentioned I may quite well be wrong.' (1919: 218).

into view, as well as its target.²⁶ So I say that during the day you are acquainted with the stress quality, and it is the same quality you later examine, but most of its extent is not yet in acquaintance. It seems to be excluded, or occluded, by other objects of daytime awareness. Thus acquaintance clearly has a ‘bandwidth’, or scope. It has a limited field of view. Russell would be wrong to say what we are acquainted with is always all there is to a quality breadth-wise, if that’s what he means by complete knowledge.²⁷

Someone might not want to count the evening quality as one with the day quality—after all they feel different, in an intuitive sense. The objector may want, in other words, to restrict ‘the quality’ (e.g. Russell’s ‘colour’) to what is in awareness. But there are good reasons to defend the identity claim, that we have one relevant quality-complex in play throughout the day and night episodes. For one thing, the two qualities share effects: each causes you to be forgetful and snappy, and your heart to race—and these effects are explicable with reference to this one unified quality-complex, whose parts need not all be conscious to be efficacious. Further, the day feeling does not *go anywhere*—it appears to be part of the bigger whole (like the book’s spine) and is still there when you inspect the rest of the feeling.²⁸ And, more than the book’s spine, the day quality is *integrated* with the further aspects you access in meditation: they mesh as a qualitative whole (this sort of volume *can* be judged by its cover). During the day you are not conscious of the whole extent of the stress quality, and that goes with not being acquainted with its whole extent. Other feelings are competing for the limited window of acquaintance.

The second qualification to revelation concerns a quality’s *depth*. Homogenous visual purple has red and blue as constituents. Once someone tells you there is

²⁶ This phenomenal contrast brings to mind the difference between having a word on the tip of your tongue and finally fully retrieving it—perhaps the mental mechanics are similar. See James’s justly celebrated description of the phenomenology (1890: 251).

²⁷ But Russell may well have this notion of qualitative breadth in mind when he asserts (1910-11: 109) that we can be acquainted with a ‘complex’ without being acquainted with all its constituents.

²⁸ Unlike the spine it does not become hidden as you (mentally) revolve the whole it belongs to. It feels more as if it ‘diffuses’ over that whole.

red and blue in purple you can tell by inspection that it is somewhat red and somewhat blue—you can see them ‘in there’. Red and blue are not present in purple in the way either is present when on its own, though, or when next to each other, as in Barcelona’s home kit. No matter how hard you focus on a purple patch you will not see literal redness or blueness, as when looking at a fire engine or the evening sky. And it is perfectly possible to experience purple without knowing *that* it is made of red and blue—it is even possible to take yourself to be experiencing a simple quality, before anyone gives you a clue of its composition.²⁹ So you can miss that purple is complex. Nonetheless red and blue are in there, in the purple you experience; they are present. If a playful neuroscientist subtracted the redness from the purple, the patch you experience would not be purple anymore, only blue.

Are you acquainted with the red and blue instances that are in the purple? I claim so. They inform your experience, what it’s like for you. If they change, your experience changes. So you have mental contact with them, and we can say that you are acquainted with them, these constituents of purple, in being acquainted with the purple. Clearly, though, you are not acquainted with a *sheer* redness, what you would experience seeing a red fire engine. That is because the present red is in an ongoing *qualitative reaction*, or mixed state, with the blue—they are interpenetrated and mutually informing, qualitatively.

Time for a distinction: I will say that a heterogeneous quality, one with various qualitative aspects before the mind that are in themselves each relatively homogenous, has, in this respect, *horizontal* (qualitative) parts. A homogenous quality that nonetheless has qualitative complexity, being the product of further qualities blended together, I will say has, in this respect, *vertical* parts.³⁰ A simple quality before the mind has therefore neither horizontal nor vertical parts. A complex quality with horizontal parts may also have vertical parts—for instance if one of its horizontal parts, uniform taken by itself, has vertical parts. To

²⁹ Hume famously claimed that all experienced colours are simple qualities.

³⁰ In the case of vertical as much as in that of horizontal parts, I will also use the terms ‘components’ and ‘constituents’ more or less interchangeably with ‘parts’.

illustrate, a complex quality with horizontal parts would be present in an experience of Barcelona's red-and-blue striped home strip. The stress quality described above is also of this sort. And we will say that homogenous purple, though lacking horizontal parts, has red and blue as vertical constituents.

Returning to the purple instance, there seem to be *degrees of acquaintance*, even for items fully within the field of acquaintance. You are acquainted with the purple in a way such that you are not acquainted with the red or blue vertically composing it in that way, though you *are* acquainted with them. You are acquainted with the purple directly, but you are acquainted with the red and blue only in virtue of their composing the purple. So you are not *fully* acquainted with them. For full acquaintance it seems you would have to experience each homogenous quality disentangled. So we may say that you are only ever fully acquainted with a quality that is not, in your experience, vertically composing some further quality.³¹ Such a quality I will call the 'top quality', the one 'closest' to your awareness. Hence it is false that you know red perfectly and completely by being acquainted with it in purple: acquaintance does not guarantee perfect and complete grasp. Only full acquaintance gives you that. Someone—probably the same someone as previously—might ask why we do not reserve the term 'acquaintance' for our relationship to the top quality. But the mind *does* meet the red in meeting the purple, since the purple is nothing but the red and the blue mixed, so this does still seem to be acquaintance.³²

³¹ Relatedly, here is a way of distinguishing vertical from horizontal constituents: when you are aware of horizontal constituents, it need not be in virtue of their composing some homogenous quality. But you are always aware of vertical constituents in virtue of their composing some homogenous quality. (Note that you can be aware of horizontal constituents in virtue of their composing some homogenous quality, when these are vertical constituents of homogenous horizontal constituents of a complex heterogeneous quality.)

³² Recalling that I said acquaintance does not present its object under aspects or conceptualise it, our someone might now complain when I say one is not fully acquainted with the whole qualitative depth of a vertically complex quality. Is this not getting the whole quality only under an aspect or mode of presentation? No—otherwise we must say that cameras that present things at different levels of magnification have or create 'modes of presentation'. Or, if they do, then modes of presentation are after all flimsy enough for me to be able to allow that acquaintance does involve them, in a sense that doesn't implicate concepts.

Whatever sub-qualities vertically compose some homogenous quality, they all make a difference to its character. Otherwise they either are not genuine qualities or do not compose it. The more qualities are vertical constituents, the smaller the difference each may make. And these qualities may have their own qualitative vertical constituents; and so on. Still, in being acquainted with the top quality you are acquainted, though to a lesser degree, with all its vertical constituents. They are such that your experience would change were they removed.³³ And your mind is meeting with them, in meeting the quality they compose and their contributions to it. It seems quite possible that what we think of as basic ingredients of colours—hue, saturation, brightness—have themselves far more qualitative complexity than we realise. We are acquainted with these ‘micro-qualities’, but have not explicitly recognised them yet.³⁴

Concepts would help us to get a fix on them. If you inform someone that purple is a red and blue compound, they should be capable of seeing the blue and the red ‘in there’. Nothing is added to the purple experienced in such cases. Having previously seen isolated red and blue, one might now be led to imaginatively project them into the purple—that is something to watch for. But restricting experience to the purple itself, nothing changes. Why would it? After all the red and the blue mixed just make it the purple it is, so why would acknowledging them change *it*? This *recognition* (we already cognise them) involves wielding the concepts of blue and red as ingredients. Imaginative projection requires you to have had full acquaintance with red and blue, and forming completely adequate concepts of them likely also requires this. If we had experienced red exclusively as mixed—in purple, orange etc.—we would have only a partial sense of its identity as an independent quality. It does seem possible in experience to discern qualitative elements we have never witnessed in isolation, even to form concepts of them, albeit not fully adequate ones. For instance, we seem to know what *visual warmth* is—red has it, orange, and brown, but not grey, silver, blue or black—yet we never catch visual warmth on its own. The same is true of

³³ Whether you would judge that it changes is irrelevant, except as defeasible evidence.

³⁴ See Schroer (2010) for speculations about what I am calling ‘micro-qualities’ (or ‘sub-qualities’): he suggests ‘strength’, ‘warmth’ and ‘coolness’ may be among their number, for the colours at least. Hartshorne (1934) argues that such ingredients are multi-modal.

brightness.³⁵ Examples like these tend to confirm that there are micro-qualities within acquaintance,³⁶ and that even if they run to some depth they need not elude the classificatory reach of conceptual cognition.³⁷

Conceptualising the vertical constituents of a complex quality does not alter the quality experienced. But concepts can affect our experience of horizontally complex qualities. Rosenthal observes that in ‘wine tasting and musical experience...conceptual sophistication seems actually to generate experiences with more finely differentiated sensory qualities.’³⁸ The key question is whether concepts *cause* these experiences to change, or whether their application *constitutes* the change. I suggest their contribution is causal. Imagine that, though a relative novice, you manage to taste a wine properly—slowly, with the correct nasal action, and so on. After your first crude taste, someone says: ‘Look out for the acidity’. Isn’t it right that this prompts you to scan for an element that *was* present, but which was not the object of distinct focus? According to Smith:

Experienced tasters will learn more from their sensations about the...wine...by paying attention to particular aspects of their sensory experience...he guides his attention towards certain aspects of his experience, selecting some for peculiar scrutiny.³⁹

This description strongly suggests that the relevant qualities are already there for attention to be paid to them. Are you acquainted with the acidity before you are encouraged to look for it? Well, does it shape your experience? Is it an

³⁵ Though Plato has this as one among the colours in *Timaeus*.

³⁶ Tye (2009) says we are acquainted with things only if we are put in a position to ask ‘What is that?’, and this would apparently not be true of micro-qualities—we do not normally notice them, in the relevant sense. Still, conscious animals must be acquainted with qualities, and they are in no position to ask such questions (this is not to deny that they have some basic concepts, in this I agree with Tye). Or *are* we in a position to ask the question, in fact? What is there to ‘being in position’, here? We are in position to ask about a micro-quality, since we are acquainted with it: it is subjectively present for the question to be asked about it. We just do not ask because we do not focus on it. Alternatively, perhaps by restricting what he says to full acquaintance Tye’s thought can be swallowed.

³⁷ Could our macroqualities of experience, even our entire personal fields of qualities, be vertically composing something far bigger? Why not? A universe-fabric: we are each ‘zoomed in’ to a patch, in our particular awareness. Pantheism lies yonder!

³⁸ (1991: 34).

³⁹ (2007:49).

element of the experience? The answer to that seems to be ‘yes’—otherwise it is puzzling how you could select it for scrutiny. I propose that the application of concepts (like ACIDITY) causes the guiding Smith describes rather than constituting any change in the flavour experienced. This seems intelligible as the concept prompting your awareness to narrow its focus, or scan along the complex quality—the horizontally extensive wine-flavour—zooming in to pick out qualitative contours only peripheral until then. Such magnification can perhaps be understood as making a given horizontal part fill up proportionally more of the limited field of acquaintance, in the process excluding (or making peripheral) other qualities: literally raising its volume.⁴⁰ That is why experience changes. After conceptual prompting the quality in question takes the centre stage of awareness, and becomes more experientially prominent.⁴¹ This is often the case with a quality that is myriad, with many horizontal constituents: the sensory equivalent of a multicoloured ball of knitting, where taking in the whole is at the expense of resolution in specific parts.

Still, though your experience is altered by the application of concepts, the wine-flavour, that extensive horizontal quality, plausibly remains as it was. Experience is a function of the manner in which we access a given quality—e.g. which parts we focus on. But the horizontally complex qualities focused on need not be altered by such processes. Once we distinguish in this way an alteration in experience from an alteration in sensory qualities, we can say that even if conceptual sophistication *seems* to generate more finely differentiated sensory qualities, all that really becomes more finely differentiated is our awareness of existing sensory qualities. This fits better with Smith’s phenomenological description.⁴²

⁴⁰ Listening to classical music one might focus now on the violins, and hear the rest more peripherally; of course one heard the violins already, only not as distinctly.

⁴¹ You also become aware now *that* it is present, via the concept. The taster will likely have had previous experiences of acidity to focus on, and thereby form the corresponding concept, so as now to be capable of scanning for the quality. Short of that, acquaintance with a similar enough quality will likely suffice.

⁴² That the description is phenomenological may also make one doubt that conceptual sophistication even seems to generate further qualities.

Overall, I restrict Russell's cases of complete and perfect knowledge—revelation—to qualities with which full acquaintance is possible. That means a top quality, one not vertically constituting any further quality in one's experience, and where this quality is relatively homogenous: it does not have horizontal qualitative parts, or not many, within consciousness or without. If they are out of consciousness then our knowledge of the whole is incomplete, as with the stress feeling. If they are in consciousness, as with the wine flavour with its tannin, acidity and so on, then it seems there can be a 'crowding effect', where each individual aspect enjoys insufficient volume at a time. Strictly all these horizontal parts are within acquaintance. But the epistemic aspect of acquaintance benefits from a more monolithic focus. Of the homogenous purple field it does seem right to say that, at the level we peruse it, our knowledge of the *purple* is perfect and complete. Learning about its vertical qualitative texture—red and blue—does not increase knowledge of the purple *qua* purple.⁴³ For it is what it is, that very mixed state of red and blue. Revelation is simply the name we use when contemplating the epistemic aspect of full acquaintance.

Is acquaintance then infallible? I have suggested it has a limited field of view or capacity, so that detail in a complicated sensation may not all be brought into clear focus. But it doesn't of itself get things wrong. Nothing acquaintance says about purple, the wine quality, or the stress feeling for that matter, conflicts with what you find later. You only access in greater resolution what was there already, or discover parts that were not in awareness. You can easily err by judging that *this* is all there is to a quality, for example when some of it outruns awareness horizontally: but this is not something acquaintance declares, so not its error. You can certainly misperceive the blue sky as green, but you cannot be acquainted with a blue quality that is really, in its true nature, green.^{44, 45}

⁴³ If you think learning about its vertical qualitative constituents counts as completing our knowledge of purple, then full acquaintance is possible only for vertically simple qualities. I do not know if we experience any such unblended qualities, but it seems possible that we do. Yet learning *about* is learning truths, and the topic here is non-propositional knowledge.

⁴⁴ Kriegel (2009: 108): 'It cannot be that, upon looking at the sky, my visual experience has a bluish qualitative character, but I am aware of it having a [n entirely greenish] qualitative character.' Later (§3) I reject his explanation of this fact.

Lastly, acquaintance is a cognitive achievement: it involves making substantive *contact* with something. This feature can be seen to depend upon the fact that awareness and its target are non-identical. In acquaintance awareness achieves a metaphysical and epistemic connection with another existent—acquaintance thus in some degree enlarges the subject’s world. Did it not enlarge the subject’s world in this way, acquaintance’s claim to be a kind of knowledge would be jeopardised.⁴⁶

These are the features I have picked out as characterising acquaintance: It is an especially *direct* relation the subject bears to sensorily qualitative states, so that one’s awareness seems to be *not wholly distinct from its object*. With certain qualifications, it provides *complete* and *perfect, infallible, non-conceptual* and *non-propositional, knowledge* of its objects. Nonetheless acquaintance amounts to a *substantive cognitive achievement*. Given this special list of properties, it is perhaps not surprising that theorists have been dubious about acquaintance’s naturalistic credentials.

3. Reductive Models of Acquaintance

In this section and the next I consider some reductive physicalist accounts of consciousness, seeking one with formal features suited to modeling acquaintance. I examine *higher-order* theories of consciousness, a field inspired

⁴⁵ What are the implications for that familiar physicalist move—of saying that qualities of experience have a recognisably physical, but ‘hidden’, backside, something non-qualitative like *being a c-fibre firing*? My account is strictly compatible with such backsides—acquaintance need not make us aware *that* there’s a physical aspect to a quality, even if on the theory we must be aware of this aspect if it exists. Evidently we are not fully acquainted with any such aspect, and it is not revealed alongside the top quality (cf. Goff 2015). I would place a requirement on any constituting vertical constituent, that its relation to the whole—its contribution to the complex quality—be intelligible, in the way the contributions of red and blue to purple, or brightness and warmth to orange, are. If (e.g.) neural properties cannot meet this demand then they are not in the constitution of sensory qualities. As noted, however, the present paper concerns the possibility of *acquaintance* being physical, not its relata. For my view of qualities see Coleman 2015a.

⁴⁶ Similarly, for Russell ‘Acquaintance...essentially consists in a relation between the mind and something other than the mind; *it is this that constitutes the mind’s power of knowing things.*’ (1912: XX, my emphasis).

by Rosenthal's work.⁴⁷ If acquaintance can be modeled by such a theory, that would show it to be capable of physical implementation. What makes higher-order theories a good place to search out a model, notwithstanding the common worry that acquaintance must be non-natural, is that they (typically) build in a two-part structure, and make a conscious mental state the object of awareness. These features already suggest echoes of acquaintance.

Although higher-order theories are widely acknowledged as the most developed reductive accounts of consciousness, many philosophers doubt their power genuinely to explain subjective experience, i.e. to solve the 'hard problem'.⁴⁸ My task is not to solve the hard problem, however, but to see whether acquaintance's key features can be physically modeled. So I won't defend higher-order theories on this score.⁴⁹ To the extent one finds my model of acquaintance in §4 appealing, though, and given the close connection between acquaintance and consciousness, one may find one's credence in higher-order-style treatments of consciousness correspondingly boosted.⁵⁰

Consider first Rosenthal's own higher-order thought theory. Rosenthal believes sensory qualities can exist unexperienced. Perhaps when a blindsighter perceives a purple painting she instantiates a purple quality in her visual cortex, and its presence explains her amazing capacity for colour judgement. Still, she isn't conscious of that purple; there's nothing *it* is like for her. Rosenthal claims that what makes a sensory state conscious is having a suitable thought about it.

⁴⁷ See his (2005) volume. As has been noted, the idea of awareness through meta-cognition has antecedents in Aristotle's *De Anima* and in Locke (see e.g. Caston 20XX). See also Feigl's (1971: 305) suggestion that one brain area 'scans' another.

⁴⁸ For instance, some object that higher-order theories analyse consciousness as the conjunction of two non-conscious things, and complain that such a conjunction cannot add up to consciousness. But this objection is unfair: any attempt to *explain* consciousness as such must be in terms of the non-conscious, or it is no explanation. Thus any explanation of consciousness will involve a conjunction of non-conscious elements. So all the objector can be saying is that consciousness is brute. Perhaps it is, but purported explanations of it cannot be faulted simply on the ground that they involve components that lack consciousness, i.e. that they attempt to explain it *at all!*

⁴⁹ For relevant defence of my own higher-order theory of consciousness, see Coleman (2016).

⁵⁰ WARNING: Credence levels can fall as well as rise.

On his theory this thought counts as higher-order because it is a mental state that represents another mental state. So a subject experiences her sensory state of purple just in case she tokens a higher-order thought (HOT) that represents her to be in such a purple sensory state.

Note that for Rosenthal consciousness standardly involves two separate mental states: the sensory state, and the HOT, and each can exist without the other. Without a HOT to represent it, a sensory state is unconscious, like a blindsight visual state. But what if a HOT represents there to be a purple sensory state when there is no such state?⁵¹ Rosenthal says that the subject experiences indistinguishably from the case where the purple state exists and is HOT-represented. This reveals that it is HOTs that call the shots for the stream of consciousness: the subject is aware of all and only what her HOTs represent. It is the manner of HOT representation that truly shapes the subject's experience. That is confirmed by 'illusion' cases, where the HOT merely misrepresents an existent sensory state. Say that it represents the *purple* state as *yellow*: here the subject experiences yellowly, rules Rosenthal.

Can this model capture acquaintance? The main problem is that on HOT theory we turn out to be somewhat cut off from sensory reality. One is never in fact genuinely aware of one's sensory state, even where it exists, but, instead, only of what the relevant HOT represents to be the case. This is what follows from Rosenthal's treatment of the two sorts of mismatch case above. One certainly can be in the happy situation where the representation is accurate: the sensory state is as the HOT portrays it to be. But that seems analogous to the situation of seeing a projector image of a purple painting, which happens to be projected *onto* just such a painting. Although one is well informed about what is there, still in an intuitive sense one only sees the projection, and not what it represents, which is actually obscured by the very representation of it.⁵² Rosenthal's move to

⁵¹ Neander (1998) initiated a tradition of objection to Rosenthal via such cases, the existence of which he had long acknowledged.

⁵² That's so even if the projector gets a feed from the painting, via a camera, which causes the projection; attach any further conditions you feel are necessary for representation, the problem concerns the nature of representation itself. Similar

put HOTs in sole charge of experiential contents has the result that consciousness on his theory is not actually a relation to a sensory state.⁵³ So HOT theory does not give us the direct cognitive access to sensory states that marks acquaintance.⁵⁴

A second problem is that Rosenthal explicitly affirms that awareness is wholly conceptual: it is concepts in HOTs that dictate experiential contents, and these contents are descriptive in form. This is the most basic form of consciousness, he maintains.⁵⁵ So there is no possibility on HOT theory of that kind of sheer, non-conceptual awareness of qualities characteristic of acquaintance. We framed acquaintance as something underlying the application of concepts to experience, but for Rosenthal there is nothing more basic than this conceptualisation. Hence, overall, Rosenthal's theory is unsuitable for capturing acquaintance. This is hardly surprising: one of Rosenthal's main preoccupations is the possibility of divergence between mental appearance and reality, and he is opposed to anything in the spirit of acquaintance.

If the main problem with Rosenthal's theory is the gap between awareness and its target—between HOT and sensory state—a natural move is to bind them more tightly together. The theory that binds them maximally tightly is *simple self-representationalism*, where sensory state and higher-order representation are identical. This entails one state with two representational contents. First, it represents a purple quality, perhaps ascribing it to an external region of space. Second, it represents itself: its content being something like '*I am a purple-*

reasoning prompts Block's (2011) complaint concerning the 'dual layer' of sensory contents on HOT theory. See also Rosenthal's statements that sensory states are only present in consciousness in the way HOTs represent them, which is to say they aren't directly present at all. For more on this line of argument see Coleman (2015b).

⁵³ As Brown (2012) notes. This is as much as to say that a sensory state is *never* conscious on HOT theory.

⁵⁴ This worry applies equally to Lycan's (1996) higher-order perception (HOP) theory: It is the higher-order state that governs how experience manifests on this theory, and HO-style illusions/hallucinations remain possible, so we are every bit as cut off from mental reality as on Rosenthal's theory. Equally unsurprisingly, Lycan would also have no time for acquaintance. In the end I am not certain whether my positive theory is best classed as HOT or HOP—see §4.

⁵⁵ Hence if animals and babies are conscious they must have some relevant concepts. For defence of this claim see Gennaro (2011).

representing visual state'. On this analysis, when a sensory state self-represents it becomes (state) conscious, is felt. Here we can say that there is *no ontological gap* between awareness and what one is aware of, since the awareness-supplying component and its sensory target are one. So simple self-representationalism might appear a promising way to capture acquaintance.

This theory faces two difficulties, however. Our project is to devise a model of acquaintance that can be physically implemented, thereby naturalising it. And because simple self-representationalism employs representation as the awareness relation it seems naturalistically respectable. But not every variety of representation is guaranteed to fit with naturalism. Representation is analysed by reductionist philosophers as a tracking relation: of a mental state to external targets in perception, or of one mental state to another for those who think representation can implement consciousness. But tracking mechanisms have a core causal component—the tracked *causes* the tracker (or did in a learning phase, etc.). Clearly, a single mental state cannot cause itself. Hence it cannot track itself. Nor, therefore, can it self-represent, in a naturalistically acceptable sense. So simple self-representationalism is not our desired model of acquaintance.⁵⁶

The second problem points towards a better theory. We earlier suggested that awareness, while not wholly separate from its target (as on Rosenthal's theory), is nonetheless distinct from this target in some way. It does not seem phenomenologically as if every sensory state is identical to its own awareness. And it would be odd to hold that a state of awareness could not survive a change in sensory qualities. But this seems to be a consequence of simple self-representationalism, since the qualitative properties pertaining to a single self-representing state surely enter into its identity conditions. Given that this state is also a token state of awareness, it follows that a state of awareness cannot

⁵⁶ Kriegel, formerly an advocate, makes this criticism of simple self-representationalism in his (2009), and I repeat it in my (2015b). Perhaps this theory remains open to a non-physicalist modeler of acquaintance, e.g. if they can make out a non-tracking-based form of self-representation—notwithstanding the following objection.

survive a change in the qualities in awareness.⁵⁷ Here, then, is another reason to look beyond simple self-representationalism: it binds awareness and sensory states a little *too* tightly.

Kriegel defends a sophisticated self-representationalism. Suppressing some detail,⁵⁸ there is again a single state involved in consciousness, but now it has two parts. One is (say) our purple sensory state. The other is a higher-order component, representing the sensory state. But since sensory state and higher-order representation are bound in a further, conjoint, state, in representing the purple state the higher-order state represents a part of a mental state of which it is also part. According to Kriegel, this bi-partite mental state thereby *self-represents*—one part represents the whole, by representing another part of that whole. And since self-representation is Kriegel’s essential recipe for consciousness, we have a conscious state. Because there are now parts to the vehicle for a conscious state, these can be causally related, so no state need represent itself directly. The higher-order state’s representation of the whole is *indirect*, for Kriegel, hence non-causal: it is akin to the way a painting represents an entire house by directly depicting just the front. Generally, Kriegel argues, one can non-causally, indirectly, represent a whole by directly, causally, representing a significant part of that whole. So Kriegel’s theory avoids the naturalism-related worry confronting simple self-representationalism.

At first sight this single, but bi-partite, state structure offers an appealing way of capturing the idea that in acquaintance one’s awareness is not identical to, but neither wholly distinct from, the target of awareness. Here the awareness-supplying component and its target are not wholly separate, since they compose a single conjoint state. But neither are they identical: they are two states that can

⁵⁷ The picture on simple self-representationalism seems to be of a rapid, but disconnected, cascade of self-representing states of awareness, each with its own sensory quality, to model the evolving stream of consciousness. This picture, though pretty, is phenomenologically inapt.

⁵⁸ For full details of Kriegel’s theory, as well as criticism on other counts, see Coleman (2015b).

come apart. This appears to be a pleasing in-between option. So is this the way to model acquaintance?

Unfortunately it is not. With dual components the possibility recurs, familiar from Rosenthal's account, of the awareness component misrepresenting the sensory state. What if the higher-order component represents the purple state as yellow? Kriegel explicitly understands higher-order representation as *constitutive of* experienced qualities: what the higher-order state says, goes, subjectively. Hence the subject experiences yellowly in this case. Kriegel seeks to make a virtue of this feature, specifically as regards approximating acquaintance:

‘It may be possible...to capture both (a) the impossibility of “getting wrong” qualitative properties in the right kind of inner awareness, and (b) the lack of “whole distinction” between that awareness and what one is thereby aware of, by construing inner awareness in terms of *constituting* representation. The idea is that qualitative properties are constituted by the inner awareness representation of the conscious state.’⁵⁹

But now not only is there no whole distinction between awareness and the quality one is aware of, there is simply no distinction *at all*—the component supplying awareness and the component supplying qualitative content are one. So Kriegel's account has not delivered on its promise to construe awareness and its target as neither identical nor wholly distinct, in line with acquaintance.

Another upshot of Kriegel's constitutive representation is that the sensory state is screened off from awareness, as on Rosenthal's theory.⁶⁰ Equally seriously, Kriegel's embrace of constitutive representation prevents acquaintance from being a cognitive achievement. Kriegel's model makes consciousness infallible about experienced qualities ‘not because of any *cognitive achievement* involved in the relevant awareness, but simply because [qualities] are *constituted by* the contents of the awareness.’⁶¹ It is not that one's awareness is guaranteed to be of

⁵⁹ (2009: 109).

⁶⁰ Kriegel candidly concedes that on his theory the sensory state's qualitative content is ‘not phenomenologically manifest in any way’ (2009: 110).

⁶¹ (2009: 110).

purple because a purple sensory state directly and intimately confronts one in consciousness. Rather, it is the awareness itself that guarantees, by manufacturing, an experience of purple. But acquaintance carries definite connotations of an intimate and infallible encounter with *something else*. As noted, acquaintance enlarges the subject's world. The relevant intimacy is no good as supplied by the internal lightshow of a mental projector shining back on itself—that makes the subject's awareness meet no reality but its own. If we want acquaintance, we will therefore want something other than Kriegel's theory.

Kriegel is ultimately content with the fact that his model differs from genuine acquaintance, which he finds a 'somewhat mysterious notion'. He is far more comfortable resting with constitutive self-representation. His worry must be that acquaintance cannot be naturalised. But, though we have not yet been able to model acquaintance in a way that can be physically implemented, which might indeed support the view that it cannot be naturalised, we should not give up. I will next show how natural acquaintance is possible, by moving away from employing representation as the main cog in a higher-order theory.

4. Natural Acquaintance

Favoured accounts of content transmission in the brain, e.g. of how visual information gets from the retina to V1 and beyond, are causal-cum-representational. Earlier processing is understood to impact *causally* on later processes; single neurons downstream have receptive fields of multiple upstream neurons, and in their firings carry—are said to *represent*—the contents pertaining to these earlier cells. Once the later neuron is set up to fire, earlier neurons and their activity are in theory dispensable: their key role is to cause later neurons to discharge, all the way up to those supposed to be directly involved in the production of a visual image.⁶² We thus tend to think that a token

⁶² At least some earlier neurons will be involved in the feedback loops of re-entrant processing, and this may well be part of the implementation of conscious acquaintance. However, the point stands if we restrict it to the *activity* of an earlier neuron at a time *t*: the neuron's earlier activity is considered dispensable once effects downstream are

visual state caused in the normal way—via retinal activity—could also have been produced, had we only the technical knowhow, by a direct cortical stimulation: bypassing earlier neurons while preserving their exact effects on later ones. Everything that matters content-wise is judged to be present at the last stages of visual processing, since it is held there in representations. Likewise it is the electromagnetic goings-on most proximal to your television screen that really determine the image displayed, even though the typical causal chain extends back to the studio and cameras.⁶³ But the inadequacy of the higher-order theories just considered has already served us a warning that representation may not be the best way to render the mechanics of experience, given that consciousness involves acquaintance.

There is another way to conceive of the contribution of early neurons and their contents to a visual state. On this model the content-transmitting relation, what gets visual information from the brute sub-personal levels of earlier processing up to the personal level of visual experience, is not causation/representation, but *part-whole constitution*. Feinberg contrasts what he calls compositional, or ‘nested’ hierarchical systems with ‘non-nested’ hierarchies. A chain of military command is a non-nested hierarchy. Here the system’s constituents are physically independent of one another: the general is not composed of the lieutenants, and the lieutenants are not composed of the privates. But in a nested hierarchy, Feinberg says, ‘the elements comprising the lower levels of the hierarchy are physically combined or nested within higher levels to create increasingly complex wholes’.⁶⁴ Content carried through such a system can behave in the same way. This leads Feinberg to suggest that the structure of the visual system is a nested hierarchy, as follows:

primed, even if some of those effects involve that cell, and its subsequent activity, in re-entrant processing.

⁶³ Thinking of the visual state as *perceptual*, we may want to individuate it by its ultimate cause, the object seen. But *qua* sensory state, the conception relevant for now, it—this token—is considered capable of being caused in different ways. Similarly we will identify the TV image by who is in front of the camera when thinking of it as part of a broadcast show, but *qua* mere coloured image on the screen it is susceptible also of multiple causes, e.g. bumping the TV.

⁶⁴ (2000: 79).

Consider again the face-responsive ‘grandmother cells’. The topical convergence of the visual pathways creates cells that are so specific that they will selectively fire to a face. The existence of such cells might lead one to think that a single ‘grandmother’ cell, at the top of the perceptual hierarchy, embodies the representation of an entire face in consciousness, but the analysis of the visual hierarchy demonstrates why this is not so. A ‘grandmother cell’ might respond quite selectively to a face, but the conscious representation of the face of one’s actual grandmother requires contributions from diverse and widely separated brain regions. The neurons that code the lines for the grandmother’s nose, the color of her eyes and where her face is located in space all must make a contribution to consciousness, and this information is not and could not be contained in a single cell. Rather, the entire nested system of the brain functions interdependently to create the visual experience of the face. Just like each organelle makes a contribution to the life of a cell, in the nested hierarchy of a mind all the lower order elements—every line, shape and patch of color that make up total awareness of the face—continue to make a contribution to consciousness.⁶⁵

I wish to emphasise two features of such a nested hierarchy, enlarging upon what Feinberg says. The first point concerns causal relations, the second point dependence relations, in the two kinds of hierarchy. First, in the non-nested chain of military command it is clear that the relationship between the elements is *merely* causal: orders are passed down, and reports passed up, the chain, and these provoke actions by the privates or the general. In particular, the relationship between doings of the ‘lower-level’ elements—the privates—and the final ‘higher-level’⁶⁶ product—whatever the general decides the army should do—is also causal. The privates, their actions and states of mind, do not compose, but are mere prompts for, whatever the general thinks or decision he takes.⁶⁷ In a nested hierarchy the relationship between the lower-level elements

⁶⁵ *Ibid.* See also his 2001.

⁶⁶ Feinberg’s talk of lower- and higher-level elements is not entirely clear in the context, but I retain it for ease. The sense is clear enough as concerns a nested hierarchy: lower-level elements compose higher-level ones. Obviously this is precisely not the case in a non-nested hierarchy, where the term’s application is unobvious. If we think of a system’s product or output (a decision by the general, a visual image) as the higher level, then elements are lower-level by virtue of being its antecedents, whether causal or compositional. This gives a univocal sense to cover both kinds of case.

⁶⁷ Likewise with what the army—i.e. the privates—ends up doing, say on the battlefield, with respect to the general: he is not literally part of, but a prompt for, that action or end state. In an army the idea of a ‘final’ product is somewhat ambiguous, thus also talk of

may also involve causation: it is undeniable that neurons cause effects in subsequent neurons as we travel along the visual system in its generation of a visual state. But, crucially, the relationship of these elements to the *final* product is not causal, but is rather compositional. The processing of lower-level neurons does not prompt, but actually helps to make up, the final product, the visual state, when construing the visual system as a nested hierarchy.

The second, more important, feature is a consequence of this point. The final product in the nested hierarchy is peculiarly dependent on the lower-order elements. In a non-nested system, as we noted, once the later elements are causally primed, earlier elements, or at least their activity, can drop out—they are redundant, and for present purposes need not even continue to exist. Once the general has ordered a certain manoeuvre it does not much matter with respect to its prosecution whether he now dies. What matters is the effect of his order in the privates' minds. But in the nested system earlier elements and their activity take up an ongoing place in the final product, so remove them and you remove part of it. Correspondingly, in a non-nested system various kinds of antecedent could have resulted in (numerically) the same final product; they need only have the same effects in priming the final and crucial parts of the system. Analogously, one of Punch's token movements in a show can be caused variously, by different puppeteers tugging his strings in that particular manner, or even by someone manipulating the puppet's limbs directly. In the nested system you cannot vary or remove the lower-order elements without altering the final product; they are intimately bound up with it.

If the visual system is a nested hierarchy then a visual state is massively distributed in the brain. The content assigned to earlier neurons is not preserved by later causation-based representation of this content, but by the content actually helping to constitute the final state. Thus the 'grandmother neuron' does not collate the earlier information, it rather signals, perhaps co-ordinates, the completion of the visual state.

lower and higher levels, though this doesn't substantially affect the present point as it applies to a given episode involving the army.

This is to describe what may go into building a visual state, but we have not yet said what makes such a state the object of awareness—what makes us have a visual *experience*. My theory of consciousness extends Feinberg’s nested hierarchy model, combining it with the state structure characteristic of higher-order theories. On this view, a sensory state is *nested within* the further state that provides awareness of it. We may imagine two components, an awareness component and a sensory state, whose coming together, integration, supplies a full conscious state of *awareness of sensory content*. This dual-component model, where one component is primarily responsible for awareness and the other for content, i.e. *what* we experience, is reminiscent of HOT theory. But the consciousness-enabling relationship I propose is that the sensory state is *embedded within* the awareness component, which thereby functions as a mental ‘display frame’ of sorts. This embedding directs awareness onto the sensory component, and the completed two-part state is the vehicle for a full state of consciousness. So, in contrast with the higher-order views considered above, what gets sensory content into consciousness on the present theory is not being represented by a higher-order component, but this content actually slotting into the higher-order component to compose a single complex state of awareness-of-content. It is the sensory state’s qualitative content itself, that token content, which figures in consciousness. From the perspective of the higher-order component,⁶⁸ its job is akin to *quoting* the sensorily qualitative content embedded within it. Just as we slot an item to be linguistically quoted into the quotational structure ‘He/She said “-----”’, on this ‘quotational higher-order thought’ (QHOT) theory we slot the sensory state into the state that provides awareness of it. That higher-order state must therefore possess the psychological functional equivalent of quotation marks. Without yet knowing what this feature is physiologically, we can identify it by its functional upshot, which is likely that the embedded state of which we are made conscious becomes

⁶⁸ Being a mental state intentionally directed on a second, sensory, state, albeit by means of a compositional rather than a representational relation, this component still merits the term ‘higher-order state’. The slogan ‘higher-order cognitive access’ covers both relations.

cognitively accessible, in Block's sense.⁶⁹ Kriegel suggests—and I like the suggestion—that phenomenal consciousness is the categorical basis of (dispositional) access consciousness.⁷⁰

Without the mental quotational frame a sensory state remains unconscious. And without a sensory state to enclose, the quotational frame lacks qualitative content. Since consciousness is always consciousness *of* content—consciousness is in that sense intentional, there cannot be consciousness *of nothing*—the frame by itself fails to supply a conscious state: that requires the combination of sensory state and quotational frame. Just so, an empty linguistic quotational structure fails to say anything. Consider as another analogy a *picture frame*. There is the *Mona Lisa*, hanging in the *Louvre*. Its frame's function is to display the picture. Analogously, the mental-quotational state's function is to make the subject aware of the content it embeds—a kind of subjective inner display, with the functional upshot associated with awareness. There is, notably, no possibility that the *Mona Lisa's* current frame could turn out to be displaying *some other* picture in the gallery. Rather it displays exclusively, is directed upon, the picture

⁶⁹ See e.g. his (1995). Not disanalogously (sorry Orwell), a linguistic quotation makes a certain content available to the audience.

⁷⁰ Kriegel (2006). To be clear, the claim would be that the right kind of embedding, which constitutes consciousness, enables accessibility for the broader cognitive system, and that no other kind of relation could do this. Such cognitive accessibility is thus the hallmark, not the ground, of consciousness.

Someone might object that they can imagine the mental-quotational embedding in question without wider cognitive accessibility being implemented (perhaps there is, likewise, such a thing as a quoting event nobody hears). I don't have to take a stand on whether this is conceivable—the important claim for QHOT theory is that mental-quotational embedding supplies consciousness. I take it that in the normal case at least mental quotation/consciousness suffices for system-wide cognitive accessibility, and if the relation is one of ground to disposition this will be metaphysically necessarily the case (even if the disposition does not manifest, the state is never accessed). But if mental quotation is possible without accessibility, the result would be cognitively isolated (as regards the wider system) phenomenal states of the sort Block (1995) intriguingly posits: e.g. phenomenally conscious pain states suffered by a patient under general anesthetic, that she can neither react to nor remember afterwards. The embedding relation, I have also said, constitutes the higher-order state's cognitive access to the sensory state. Note that this is a narrower, not system-wide, form of cognitive access, and that it is not dispositional: the sensory state is accessed, not merely accessible (it was by hypothesis accessible to the QHOT just prior to embedding, but consciousness did not then obtain). So there is a sense in which consciousness is a form of cognitive access: but this is simply the core claim of all higher-order theories.

it physically encloses. This answers the question: ‘But what ties a mental quotational frame to the sensory state it happens to enfold?’ The embedding relation plausibly has what it takes to ground a primitive form of intentionality.⁷¹ The quotational frame directs awareness onto the sensory quality it contains: the sensory quality is in this sense literally a content. To be clear, I am not talking metaphorically: I am talking about a physical embedding, on some level of brain-organisation, of sensory states within the apparatus of awareness.⁷² The proposal is effectively that the sense of ‘content’ normally in play in these discussions, for instance in connection with representational mechanisms posited for thought and perception, is to be cashed out via a physical, spatial sense of ‘content’, instead of via the notion of representation.⁷³

Non-representational QHOT theory, though resembling representational higher-order theories of consciousness, is also reminiscent of quotational accounts of phenomenal concepts, those concepts we use to think about our experiences in virtue of what it is like to have them. On such accounts, too, we are said to be cognitively unusually close to experiential qualities, for instance in introspecting a pain, as the thought actually ‘quotes’ the sensation it is about.⁷⁴ I should briefly distinguish my model from the quotational model of phenomenal concepts, as this matters for how QHOT theory captures acquaintance.

⁷¹ There is a tendency to think that causation-based tracking theories of representation must be superior when it comes to latching a mental state securely to its intentional object. But it’s hard to see why: *being caused by* (plus whichever fancy embellishments on top) and *containing* are equally extensional relations.

⁷² Since on the nested hierarchy model sensory contents, even in a single modality, may be widely distributed in the brain, not to mention multi-modal experiences, our QHOTs will have to be on the large side—perhaps this is the place for Van Gulick’s brain-level ‘global higher-order states’ (Van Gulick 2004), which are able to embed states from multiple areas across the brain. In this way the binding problem receives a solution (Coleman 2016). By comparison, why would *synchronised neural oscillations* unify anything? They may be a sign, but cannot be the basis, of binding. Synchronising things does not spatially unify them, or even seem to (otherwise keeping up with distant friends would be far easier). But binding phenomenology is in large part spatial.

⁷³ Compare with Balog (2012), whose talk of part/whole constitution involving mental contents is meant non-literally, or at least non-spatially.

⁷⁴ For the quotational model of phenomenal concepts see Papineau (2002), and Balog (2012), (this volume).

First, what phenomenal concepts quote are experiences already. My theory aims at analysing what turns sensory states *into* experiences. Accordingly, what are embedded by quotational mental states on QHOT theory are not yet conscious; they are mere sensory states—in-themselves-unconscious contents. Second, it is important to note that with quotational phenomenal concepts one typically quotes an experience *token* in order to think about an experience *type*—e.g. one quotes a token pain to bring it under the classification ‘pain’, to cognise it as the *kind* of qualitative state it is.⁷⁵ One uses the token to represent the type it belongs to, in other words, and one’s real object of thought is the type, which is not present to the mind in the way the token is. But in theories of linguistic quotation there is the interesting idea of quoting a token in order to talk about that very token—for instance Searle imagines quoting the token sound of a bird by leaving a gap in your sentence for its call.⁷⁶ Here the semantic duties of the quotational structure begin and end with the embedded token (sound). This is the relevant model for consciousness, for while we may think about experience types, we experience only sensory tokens.⁷⁷ So quotational phenomenal concepts involve representation in a way QHOT theory shuns.⁷⁸ The third difference is that quotational phenomenal concepts provide conceptually mediated access to their targets. But I hypothesise that, although I call them ‘thoughts’ in a loose sense,⁷⁹ QHOTs do not, or certainly need not, conceptualise their embedded sensory targets. They are rather of the form of ‘slots’ into which sensory states enter as they are.

⁷⁵ Balog (2012).

⁷⁶ Searle (1969: 76).

⁷⁷ See also Zemach’s (1985) notion of a ‘mental display sentence’, which features a token mental state ‘presenting itself’ within the relevant display structure. Zemach does not entertain a role for mental display sentences in implementing consciousness, but Kriegel (2009) seizes upon the idea for this purpose. Where Kriegel seeks to construct mental display sentences using his sophisticated self-representational structure, earlier criticised for its inability to capture acquaintance, I favour my QHOT model. See also Coleman (2015b) for more on mental display sentences in relation to QHOT theory.

⁷⁸ This is not true of the Gertler-Chalmers model (Gertler 2001, Chalmers 2003), which also uses part/whole constitution as the intentionality-grounding mechanism of a phenomenal concept.

⁷⁹ In some moods I am prepared to give up this term: it seems clear that a QHOT cannot be true or false. But must all thinking be propositional? One recalls Descartes’ broader use of the term.

Even this brief sketch of QHOT theory should be enough for us to see how it might be used to model acquaintance:⁸⁰

Directness: One is aware of what slots into the QHOT, and this embedding is the mechanism of awareness. One is not aware of a sensory state by being first aware of something else—in particular, one does not *represent* it.

Non-propositional/non-conceptual knowledge: The cognitive and epistemic connection mental quotation provides is not of the form of making a judgement about the target, and it is not something truth-evaluable.⁸¹ Moreover you do not, just in being aware of a sensory state by embedding it, bring it under any particular concept. Rather the sensory content is simply present to consciousness, as it is. Acquaintance as I have described it is a minimal condition of experience, whatever conceptualisation typically goes on top. This counts as a basic form of knowledge since epistemic possibilities are cut down for the cognising subject in experience: she is aware of a certain way the world is.

Awareness and its object not wholly ontologically distinct: The complete consciousness-supporting state has as parts the awareness component and the sensory state, and the sensory state is embedded in the awareness component. Thus we can say that a state of awareness is not wholly distinct from that of which it provides awareness; a state of awareness-of-content has the token content built into it.⁸² Still, it is not built-in in that undesirable way achieved by Kriegel's constitutive representation of qualities. On QHOT theory, the

⁸⁰ For more on QHOT theory see Coleman (2015b).

⁸¹ But isn't quotation propositional? So does a completed QHOT not do something like *assert* that a certain sensory quality is present, i.e. it has a truth-evaluable content? But quotation is not always propositional. We can for example quote something somebody has said in order to mock them, if that something is so obviously objectionable that merely displaying it is funny. The audience may well already know that said person said it, so an assertion that they did is not part of the quotational act here. The suggestion that such an act is covertly assertive, equivalent to 'The phrase here embedded is objectionable to the point of amusement' is as unlikely as it is unwieldy, and loses the humour. Of course what's quoted may be propositional, for all that.

⁸² Note that the awareness component, the mental-quotational frame, is not something of which we are aware in consciousness: it is part of the vehicle, or machinery, of consciousness, not part of the experience, the conscious content. See further Coleman (2015b), (2016).

qualitative content experienced does not exist only in so far as it is experienced, and it is not constituted by our awareness of it. A sensory content and its awareness can perfectly well come apart. So, when combined, we may happily say that they are not identical, nor yet wholly ontologically distinct. They form a complex single state. We have found the relation we were seeking to model acquaintance.

Connectedly, acquaintance is a clear *cognitive achievement* on QHOT theory. One is not caught in the internal lightshow of a quality-producing awareness; rather awareness makes contact with something ontologically beyond itself.⁸³

Russell relies on a distinction between the act and the object of awareness to make good his claim that acquaintance connects the subject to something beyond herself.⁸⁴ Though in consciousness the sensory object of awareness becomes part of a complex, and undoubtedly mental, state of awareness-of-qualitative-content, QHOT theory can capture Russell's distinction. For, following Russell, we can closely associate the subject with the episode or state of awareness, i.e. the QHOT frame. For its part the sensory object can exist outside of awareness⁸⁵ (and may enter the vehicle of a conscious state without intrinsic change). Further, since awareness is of the essence of mentality, there is a good sense in which awareness meets something non-mental (or: not intrinsically mental) in meeting the awareness-independent sensory object.⁸⁶ Considering what is there intrinsically, a completed QHOT may thus be viewed as a mental state with a non-mental component. Such a view is not unusual—it compares to a direct realist conception of a perceptual mental state as featuring an external-world constituent. The striking difference on the current theory is that certain

⁸³ Recall that on Kriegel's theory, as much as on Rosenthal's, we are not even conscious of our sensory states, merely of facsimile content manufactured by awareness.

⁸⁴ As noted this shores up his claim that acquaintance is knowledge.

⁸⁵ Cf. Russell (1917/1951: 113).

⁸⁶ Cf. Russell (1917/1951: 111). That this object becomes mental in a relational sense in consciousness is not a problem, but arguably a virtue, of the theory.

objects of awareness even in the head are considered as non-mental.⁸⁷ The upshot is that on QHOT theory acquaintance is a bridge between the subject and the world beyond her.⁸⁸

Infallibility: There is no question of a quality being misrepresented in acquaintance, since the QHOT that makes it conscious does not represent it, nor bring it under a mode of presentation in the usual weighty sense.⁸⁹ What you get is the naked quality, however it is—mental quotation cannot get things wrong. This is because what carries the sensory state’s content into consciousness is just *that* state itself, with *its* content. It does this by composing one’s conscious state.⁹⁰

Revelation: A purple sensory state, taken by itself as an intrinsically unconscious item, is plausibly a nested hierarchy of levels of content, along the lines Feinberg suggests for the grandmother visual state. In acquaintance we are aware of the sensory state in its whole depth. But we are not *equally* aware of each level of depth: as noted, acquaintance comes in degrees. This is explained as follows. I have modeled acquaintance metaphysically by *composition*: we are acquainted with our purple sensory state since it becomes part of the overall consciousness-supporting state, by embedding in the awareness component. Our consciousness is partially composed of the purple sensory state. I earlier said that if red and

⁸⁷ Gertler (200X) and Coleman (2009) entertain the view that all that belongs to mentality proper is awareness, in connection and contrast with the ‘extended mind’ thesis. Gertler labels this view ‘the narrow mind’.

⁸⁸ Cf. Russell (1912, Ch. iv); Moore (1903: 27).

⁸⁹ QHOT theory allows that awareness can modify the presentation of a sensory state to consciousness (Coleman 2016). But such effects are limited to *partial* presentation of what is there anyway—e.g. where a complex quality with many horizontal components is only partially in awareness. A QHOT thus does not present a sensory quality under a guise, add to it, or represent it. So QHOTs do not have, or provide, modes of presentation in the usual substantial sense. Again (see fn. 32), if it be said that QHOTs do in this way supply modes of presentation of sensory qualities, it must also be said that cameras provide ‘modes of presentation’ of the scenes they cover. But this is not a sense of ‘mode of presentation’ whereby such a mode can mislead. For more detail on this aspect of QHOT theory see Coleman (2015b), (2016). Someone might say that in completed QHOTs an embedded sensory quality provides its ‘own mode of presentation’. But, so far as I can see, what it really means for a single property instance to provide its own mode of presentation is that there is *no* ‘mode’ of presentation.

⁹⁰ For more on QHOTs’ invulnerability to error see Coleman 2015b.

blue compose the purple we must be acquainted with them too. We can now explain this fact. Composition is transitive, so if acquaintance is modeled by composition, it inherits this transitivity: whatever composes the thing we are acquainted with is also an object of acquaintance. How then to account for the fact that the purple is fully present to awareness, and epistemically revealed, in a way that the red and blue are not? The answer is that we are aware of the purple because it composes consciousness, but we are only aware of the red and blue because they compose the purple. The composition relation between the purple and awareness is in other words direct, whereas the composition relation between the red and the blue and awareness is indirect: they compose consciousness by composing something else first. Red is present only as a contribution to purple. The same follows if red has in turn components like visual warmth: we are acquainted with those only by virtue of being acquainted with the red, which they compose, and the red because it composes the purple. We are two levels of composition removed from the visual warmth quality. Accordingly, we are even further from full acquaintance with it than we are from full acquaintance with the red, which is phenomenologically an apt result. Thus I capture degrees of acquaintance by the directness of the composition relation with respect to awareness. This is why being acquainted with an item even wholly within the field of awareness does not guarantee revelation, full and perfect grasp. That is so only for the top quality.

5. Conclusion

QHOT theory closely approximates the formal features of acquaintance. And the model uses only a mundane mechanism to implement awareness, part/whole constitution, which need not trouble physicalists.⁹¹ So the foregoing amounts to a

⁹¹ Levine (20XX) objects to a constitution-based ‘acquaintance’ model of phenomenal concepts, a model designed to address the explanatory gap (see e.g. Balog this volume), on the ground that it is unclear how ‘the presence of the relevant state within the physical implementation of the representation become something of which we are aware...The transition from physical containment to awareness is still an inexplicable transition.’ QHOTs are not concepts, nor representational, and the present model is designed as an analysis of what happens in consciousness, not in thought about consciousness. Nonetheless it might seem Levine’s criticism retains bite: just how does QHOT theory *explain* awareness? Levine writes that talk of physical containment can give rise to an irresistible instinct to think that the immediacy of awareness has been

possibility proof of a natural model of acquaintance. This far from guarantees that acquaintance is physically implemented, since for all we know its relata, awareness and sensory qualities, are in actuality non-physical.⁹² But it does mean that, as regards the acquaintance relation itself, it does not merit its supernatural aura: physicalists need not reject it; nor can anti-physicalists wield it polemically. A broader point of the discussion is that we ought to look beyond causation-based representation as the content-carrying mechanism of choice across philosophy of mind and the mind sciences, else we unduly restrict our imaginative possibilities for meshing the manifest and the scientific images. If one thinks acquaintance cannot be physical because it cannot be analysed in representational terms, that only shows the need to investigate physicalism-friendly content-transmission relations other than representation.

captured (cf. Kriegel 2009: 164), but believes we should resist, and demand a full account—plausibly he means a deduction of the features of awareness from the model, by analogy with how he views the H₂O-to-water explanatory relationship. For my part I am unsure why we should resist the irresistible, especially as we probably cannot expect full-dress deductions of important properties. The kind of a priori *inclination* to ascribe awareness that physical containment-talk inspires might be all we can reasonably hope for (cf. Chalmers and Jackson's (2001) model of reductive explanation). But I should repeat that my aim in this paper is not to solve the hard problem, to explain awareness. The aim has been only to provide a formal model of the features of acquaintance, and to make the case for the possibility of a physical implementation.

⁹² I have not shown acquaintance to be physical, and there is nothing to stop a dualist adopting the formal features of my account (Balog 2012 makes the same point about her quotational phenomenal concepts-based account of acquaintance). Giving a model with physicalism-friendly formal features is one thing, showing that the model in fact receives a physical implementation is another. One might, for example, hold that awareness cannot be satisfactorily physically explained; I have not addressed this central element of the hard problem here. On the other hand, sensory qualities may turn out to be physically irreducible. Either result means consciousness as a whole—awareness-of-qualities—cannot be naturalised. And if the relata of the acquaintance relation are non-physical then the relation, though mundane, receives a non-physical implementation: just like meeting your great-grandfather in heaven.

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