
Objective Phenomenology

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Abstract:

This paper examines the idea of *objective phenomenology*, or a way of understanding the phenomenal character of conscious experiences that doesn't require one to have had the kinds of experiences under consideration. My central thesis is that *structural facts* about experience—facts that characterize purely how conscious experiences are structured—are objective phenomenal facts. I begin by precisifying the idea of objective phenomenology and diagnosing what makes any given phenomenal fact subjective. Then I defend the view that structural facts about experience are objective. I also argue that structural facts about experience, despite being objective, nevertheless still give rise to an explanatory gap.

Introduction

Is it possible for a human to understand what it's like to be a bat? There's no doubt we can understand facts about bat behavior, function, and physiology. But phenomenal facts about bat experiences seem to lie beyond our grasp. These latter facts seem fundamentally subjective: to understand them, one must occupy the right kind of point of view. Since the points of view of humans are radically different from those of bats, no human can understand what it's like to be a bat. That, at least, is the orthodox picture within contemporary philosophy of consciousness.

The aim of this paper is to argue that there is a domain of objective phenomenal facts. I'll argue that even for the most alien of experiences, there are certain phenomenal facts about those experiences that we are in a position to grasp. By doing so, this paper examines the prospects for *objective phenomenology*, an idea famously expressed in Thomas Nagel's "What is it like to be a bat?":

Setting aside temporarily the relation between the mind and the brain, we can pursue a more objective understanding of the mental in its own right... This should be regarded as a challenge to form new concepts and devise a new method—an objective phenomenology... Though presumably it would not capture everything, its goal would be to describe, at least in part, the subjective character of experiences in a form comprehensible to beings incapable of having those experiences (Nagel 1974: 449).

Though Nagel's remark is well-known, there has been little work directly addressing the question of objective phenomenology.¹ Nagel himself said that it's "difficult to understand what could be meant by the objective character of an experience." A common sentiment is that an objective phenomenology, though an intriguing idea, is either incoherent or impossible. I'll argue, by contrast, that a limited form of objective phenomenology is possible. My central thesis is that purely structural facts about experience—facts that characterize how conscious experiences

¹ Atkins [2013] discusses the idea of objective phenomenology within a Peircean framework, Mensch [2000] discusses the idea of an objective phenomenology within a Husserlian framework, and Johnston [2007] argues that the contents of minds are objective modes of presentation. However, my aims are quite different from the aims of these other projects.

are structured, with no specification of their specific qualitative character—are objective phenomenal facts.²

Here's the structure of the paper. §1 precisifies the idea of objective phenomenology. §2 provides a diagnosis of what makes any given phenomenal fact subjective. §3 explains what I mean by a "structural fact about experience." §4 argues that structural facts about experiences are objective.

§1 Objective Facts

The idea of objective phenomenology is somewhat obscure. To evaluate the idea, we need to take Nagel's core ideas and develop them into a more precise form. Doing so will enable us to both better understand what an objective phenomenology would be and to better assess its prospects.

We can begin with some basic examples to demarcate the objective and the subjective. There are some facts about other creatures that we are in a position to understand, such as facts about behavior, function, and physiology. In the case of bats, these might include facts about flight and feeding behavior, about how their biological systems work, and about the structure of their anatomy. These are amongst the facts that Nagel calls *objective*. Other paradigmatic examples of objective facts include mathematical facts, such as the fact that $e^{i\pi} + 1 = 0$, and physical facts, such as the fact that water is H₂O.

There are also facts about other creatures that it seems we could never understand: in particular, certain facts about what it's like to be those creatures. In the case of bats, these might include facts about what it's like to echolocate. These are amongst the facts that Nagel calls *subjective*. Other paradigmatic examples of subjective facts include the fact that phenomenal red feels like *this* or the fact that pain feels like *that*. These are *phenomenal facts*, or facts about what it's like to undergo certain kinds of experiences or be certain kinds of creatures.

As Nagel famously pointed out, phenomenal facts seem to necessarily lie on the subjective side. It's hard to see how we could grasp facts about what it's like to have bat experiences unless we were to occupy the point of view of a bat, or at least a subject that could have sufficiently similar experiences. More empirical

² Nagel [1974: 449] hints at this idea when he says that "structural features of perception might be...accessible to objective description," though he doesn't develop the idea further.

investigation or theoretical analysis seems of little help; instead, it's natural to think that our limited experiential repertoire precludes us from understanding such facts. Perhaps we could grasp certain facts that refer to the relevant experiences—such as the fact that experience x is made of atoms—but these would not be phenomenal facts, since such facts do not characterize what it's like to have the target experiences. The question of objective phenomenology is whether it's possible to understand phenomenal facts without occupying a point of view that enables one to have the relevant experiences.

To address the question of objective phenomenology, we first need a more precise characterization of objectivity. Here's an initial analysis, following the language of Nagel: a fact is *objective* just in case it's understandable from any point of view, and *subjective* just in case it's understandable only from particular points of view. Let me say more to explicate these definitions.

For the purposes of inquiring about objective phenomenology, it's best to understand a *point of view* as a set of experiential capacities. Every subject has certain experiential capacities, which determine which experiences that subject could have. My experiential capacities enable me to experience seeing red, feeling pain, and smelling cinnamon, but they do not enable me to have rich echolocation experiences, or experiences of moving my seventh tentacle spirally, or of sensing a polarized magnetic field nearby. Because of this, I'm in a position to understand phenomenal facts about the former (but not the latter) kinds of experiences. Note that in the expression 'any point of view', the quantifier scopes over all possible points of view (rather than only actual points of view), since which facts are objective shouldn't depend on which subjects actually exist.³

I'll assume that philosophical zombies, or creatures with no experiential capacities, lack points of view. This is a somewhat stipulative matter, but it's important for properly defining the core thesis of this paper. I do not wish to argue that it's possible to develop an objective phenomenology if the objectivity of a fact requires that it's understandable even by zombies. I wish instead to argue that there are phenomenal facts about even the most exotic experiences of bats and aliens and

³ This characterization of points of view aligns with those from Nagel [1974, 1986]. For other analyses of points of view (for different though related purposes), see McGinn [1983], Moore [1987], and Farkas [2008]. For a meta-analysis of points of view, see Biro [2006].

octopuses that we could understand, even though we have radically different experiential capacities. That is the principal challenge set forth by Nagel, as well as the main ambition of this paper.

Those sympathetic to physicalism might say that phenomenal facts just are physical facts. But for our purposes, a *fact* may be understood simply as a true proposition.⁴ In other words, I take facts to be the objects denoted by that-clauses in propositional attitude ascriptions, rather than the states of affairs in virtue of which those objects have truth-values. For physicalists who prefer not to frame the discussion in terms of facts, we could instead reconstruct the discussion in terms of propositions, truths, modes of presentation, or concepts. So long as one accepts the aforementioned asymmetries between what we could understand about the experiences of other creatures and what we could understand about domains such as the external world, we can raise the issues discussed in this paper.

To *understand* a fact is to grasp what it is for that fact to obtain. A fact is understandable from a point of view just in case that point of view has the experiential capacities needed to grasp it. If no particular experiential capacities are needed to understand a fact, then that fact is understandable from every point of view. Note that a fact might be understandable even if it's unknowable. For example, suppose that it's impossible to know whether the universe contains a prime number of electrons. Even so, we would still understand what it is for the universe to contain a prime number of electrons.

The Nagelian sense of objectivity defined here differs from other notions of objectivity used in other philosophical contexts. First, I've defined objectivity as a property of facts. But in some other contexts, 'objective' is instead used to denote a property of other kinds of things, such as scientific methods. Second, I've defined 'objective fact' as a fact that is understandable from all points of view. But in some other contexts, the term 'objective fact' is used to denote (c) facts that obtain from all points of view, or (d) facts that are non-experiential in nature. There may be interesting connections between the Nagelian notion and these other senses of 'objective', but I won't take a stance on how exactly to understand that relationship. My aim is to examine whether the Nagelian notion of objectivity can justifiably be

⁴ See Crane [2003: 12] for a similar point in a similar context. See Mulligan & Correia [2020] on theories of facts. My use of the term 'fact' follows the terminology in Nagel [1974, 1986].

ascribed to some phenomenal facts.⁵

Let me now address three objections to the above analysis of objectivity.

Objection: Triviality. The analysis makes it trivially true that there exist objective phenomenal facts. If we define ‘objectivity’ by appeal to experiential capacities, then isn’t it unsurprising that there exist objective phenomenal facts?

Response: In §2, I’ll discuss why many phenomenal facts do not satisfy the conditions for objectivity. Since the analysis of objectivity is compatible with the existence of subjective phenomenal facts, the existence of objective phenomenal facts cannot be trivially true. In fact, instead of evoking worries of triviality, the analysis of objectivity should elicit the paradoxical character of objective phenomenology: an objective phenomenal fact is a fact that characterizes what it’s like to be a subject yet does not require any particular set of experiential capacities to understand.⁶

Objection: Cognitive Factors. The above definition of points of view considers only experiential capacities. But we should also take into account cognitive capacities when individuating points of view. **Response:** The term ‘point of view’ is ambiguous, with its meaning varying across theoretical contexts. But the sense of ‘point of view’ relevant to objective phenomenology requires abstracting away from non-experiential factors. If we were to include cognitive capacities in our individuation of points of view, then we would be unable to capture the concept of objectivity that we started with. Most animals lack the cognitive capacities required to understand certain mathematical and physical facts, but that doesn’t make those facts subjective. If points of view were individuated by cognitive capacities, then no domain of facts whatsoever would count as objective, since for any fact there would be some points of view that lack the cognitive capacities required to understand that fact. To generate correct predictions for paradigmatic examples of objective facts, we

⁵ For examples of these other uses of ‘objectivity’, see (a) Masrour [2013], (b) Reiss & Sprenger [2020], (c) Merlo & Pravato [forthcoming], and (d) Searle [1997]. For uses of ‘objectivity’ that closely align with my characterization, see Crane [2003: 16], who says that objective facts are “facts the learning of which do not require you to have a certain kind of experience or occupy a certain position in the world,” and Howell [2007: 149], who says that “an objective theory of a particular type of experience cannot require that one have a token of that type of experience in order to completely understand it.”

⁶ See Nagel [1974: 438-443] and [1984: Ch. 1–3] for his discussions of objectivity.

need to abstract away from non-experiential factors.⁷

Objection: Cognitive Phenomenology. If understanding requires a capacity for cognitive phenomenology, then no facts would count as objective, since every fact would be understandable only from points of view that enable cognitive experiences. **Response:** Suppose that understanding requires a capacity for cognitive phenomenology. Nevertheless, there remains an intuitive difference between paradigmatic examples of objective facts and paradigmatic examples of subjective facts. To understand the former, one need merely the capacity to undergo the kinds of cognitive experiences that enable one to think at all. To understand the latter, one must also be able to undergo whichever kinds of experiences are predicated by the relevant facts. The analysis of ‘objectivity’ becomes more complicated if we take cognitive phenomenology to be a requirement on understanding. But the basic distinction between the objective and the subjective, as well as my core arguments, would remain intact.

To summarize: a fact is objective just in case it’s understandable given any point of view, where points of view are sets of experiential capacities and where understanding a fact is a matter of grasping what it is for that fact to obtain. Now we can turn to our principal question: are there objective phenomenal facts?

§2 Subjective Facts

There are indeed objective phenomenal facts—or so I shall argue. But first, it’s worth examining what makes any given phenomenal fact subjective. Diagnosing the source of subjectivity will set the stage for understanding why some phenomenal facts are objective.

Phenomenal Concepts

To understand a phenomenal fact, one must possess *phenomenal concepts*, or concepts of experiences that enable one to think about what it’s like to have those experiences. When you think about what it’s like to feel pain, you deploy the phenomenal concept PAIN. For the purposes of this paper, I’ll assume that concepts are mental representations that are the constituents of thoughts and that are used to

⁷ Analogous considerations apply to other kinds of factors that might be used to individuate points of view, such as environmental factors or indexical factors.

understand facts.⁸

While I initially characterized objectivity as a property of facts, it will be useful to extend the notion to concepts. Let's say a concept is *objective* just in case it's possessable from every point of view, and *subjective* just in case it's possessable only from particular points of view. I'll assume that if a fact is subjective, then some of the concepts needed to understand that fact are subjective. Since understanding phenomenal facts requires possessing phenomenal concepts, it's natural to think that subjectivity of phenomenal facts arises from subjectivity of phenomenal concepts. If that's correct, then we should expect limitations on understandability of phenomenal facts to be explainable by limitations on acquisition of phenomenal concepts.

This hypothesis is supported when we consider the methods that enable one to acquire phenomenal concepts. The most obvious method is introspection: for example, one might acquire a phenomenal concept of pain by introspecting one's own pain experiences. We need not assume that one can form a phenomenal concept for every kind of experience one can have: for example, perhaps one cannot form phenomenal concepts for maximally determinate total experiences, or for experiences that occupy the periphery of attention. The point is that even if there are such limitations, it's uncontroversial that one can form phenomenal concepts for many of the experiences one can introspect. Since any experience that one can introspect is an experience that one can undergo, the set of phenomenal concepts acquirable through introspection for a subject will correspond to a subset of the experiences enabled by the experiential capacities of that subject.

On some views, introspection puts us in contact only with particular experiences, rather than with phenomenal properties. Nevertheless, one can *abstract* from those particular experiences to acquire concepts for the phenomenal properties that characterize those experiences. For example, by introspecting a phenomenal red experience, one can not only form a particular phenomenal concept of that particular

⁸ The main alternative theory takes concepts to be abstract entities (rather than mental representations) and the constituents of propositions (rather than thoughts). See Margolis & Laurence [2014] on theories of concepts. See Chalmers [2003] and Papineau [2006] for some discussions of phenomenal concepts. Recently, Ball [2009] has argued that social externalist considerations show that there are no concepts whose acquisition conditions require one to have had certain experiences, though see Rabin [2011] and Alter [2013] for responses.

experience, but also a universal phenomenal concept of phenomenal red. In general, our capacity for abstraction enables us to form concepts for the phenomenal properties that characterize particular experiences. There are limits to our abstraction abilities, but it's plausible that these are due to limits in our cognitive capacities, rather than our experiential capacities. Otherwise, we would have to deny the following conditional: if a subject can have experiences that instantiate a phenomenal property, then that subject has the experiential capacities needed to acquire a phenomenal concept of that phenomenal property.

Are there methods that enable one to acquire phenomenal concepts for experiences one has never had? There are two candidates that strike me as plausible. The first is *extrapolation*, whereby one forms phenomenal concepts for phenomenal properties that lie along the same dimensions as those represented by one's prior phenomenal concepts. Even if you have never actually experienced the missing shade of blue,⁹ perhaps you can extrapolate from your phenomenal concepts of other blue experiences to form a phenomenal concept of the missing shade of blue experience. The second method is *recombination*, whereby one recombines concepts for basic experiences one has had into a concept for a more complex experience one has not had. Even if you have never had the experience of seeing red while hearing a trumpet, you might be able to recombine your prior phenomenal concepts for each unimodal experience in order to acquire a new phenomenal concept for the multimodal experience.

Here's the key point. It's plausible that even subjects with perfect introspective, abstraction, extrapolatory, and recombinatory capacities would be unable to acquire phenomenal concepts for experiences radically different from those enabled by their experiential capacities. This is evident when we think about the nature of these four methods: introspection and abstraction are limited to experiences one has had, extrapolation is limited to dimensions of experience one already has phenomenal concepts for, and recombination is limited to complex experiences whose constituents one already has phenomenal concepts for. It's plausible that for any subject, there will be experiences that the subject cannot undergo that involve fundamentally different phenomenal properties from the experiences that they can undergo. Perhaps for humans, some of the most exotic

⁹ See Hume [1738–40: Part 1, Book 1] for the original example.

experiences of bats or octopuses satisfy that criterion. If that is the case, then there are restrictions on which phenomenal concepts are possessable by any given point of view.¹⁰ This provides a diagnosis for why many phenomenal facts are subjective.

The Objectivity/Subjectivity Spectrum

Before moving to the objective phenomenal facts, it's worth making some brief remarks about degrees of objectivity. My focus so far has been on *perfect objectivity*, or facts that are understandable from every point of view. But objectivity can also be understood as coming in degrees: a fact is *more objective* when it's understandable from a greater range of points of view.¹¹ This raises the question: what makes a phenomenal fact more or less objective?

Here's a conjecture that seems plausible (but which I'll later argue is false): degree of objectivity corresponds to degree of *generality*. A phenomenal fact is more *general* just in case it ascribes properties instantiated by a wider range of possible experiences, and more *specific* just in case it ascribes properties instantiated by a narrower range of possible experiences. A maximally specific phenomenal fact might ascribe the maximally determinate phenomenal property characterizing your current total experience, while a maximally general phenomenal fact might ascribe only the phenomenal property of being a conscious experience (with no further specification of phenomenal character).

It's natural to think that generality correlates with objectivity. Since general facts ascribe properties instantiable by a wide range of points of view, there are many points of view that have the experiential capacities required for understanding those facts. And since specific facts ascribe properties instantiable by a narrow range of points of view, there are few points of view that have the experiential capacities required for understanding those facts. Hence the conjecture:

¹⁰ Nagel [1974:441] makes a similar point: "[T]here are facts which could not ever be represented or comprehended by human beings...simply because our structure does not permit us to operate with concepts of the requisite type."

¹¹ Nagel [1986: 4] also draws this distinction when he says, "Though I shall for convenience often speak of two standpoints, the subjective and the objective...the distinction between subjective and objective views is really a matter of degree..." Whenever I use the term 'objectivity' without qualification, I'll mean perfect objectivity.

the more general a fact (the greater the range of experiences that instantiate the properties predicated by the fact), the more objective (the greater the range of points of view from which that fact is understandable).

Surprisingly, there are counterexamples to this conjecture. In the next section, I'll argue that generality and objectivity come apart when we consider structural facts about experience. Nevertheless, although the conjecture is false for phenomenal facts in general, it remains plausible if our concern is restricted to phenomenal facts that concern only the qualitative character (as opposed to the structure) of experiences. In other words, there is arguably a systematic link between specificity and objectivity, but only when we set aside the sorts of structural properties that I'll discuss in the next section.

§3 Structural Facts

Let a *structural fact* be a fact that specifies how the phenomenal character of an experience is structured. More precisely, structural facts ascribe two kinds of properties: first, the property of being a conscious experience, and second, purely structural properties. Structural facts partially characterize what it's like to undergo their target experiences, but not by ascribing specific qualitative properties such as phenomenal red, painfulness, and so forth. Instead, structural facts specify how the phenomenal character of an experience is structured while abstracting away from the experience's particular qualitative character.¹² Speaking metaphorically, structural facts specify the forms of experiences while leaving open how to color in those forms.

What exactly do I mean by structure? I suspect there is no analysis of the concept STRUCTURE in terms of more basic concepts. But we can still substantiate the notion by appealing to maxims and examples. In terms of maxims, structure is that which is directly captured through formal representations, such as mathematical models; structure is purely about how things relate to each other, rather than what those particular things are; structure is form, rather than substance; and structure abstracts from the qualitative. In terms of examples, exemplars of structural

¹² I'll use the expression 'structural fact' to mean facts that satisfy the definition above. In contexts where I discuss also facts that specify the structures of other things (such as physical or mathematical objects), I'll use the expression 'structural facts about experiences'.

concepts include NUMBER, PART, MAGNITUDE, and ISOMORPHISM. As a general heuristic, I'll presume that any features of a phenomenon that can be wholly captured by formal models are structural features.

In the philosophy of consciousness, the term 'structural feature' is sometimes used to mean an invariant feature of experience, or a phenomenal feature that characterizes all (rather than only some) experiences. This contrasts with the characterization I provided above, where 'structural feature' means a feature of experience that can be wholly captured by formal models.¹³ There's an interesting question of how exactly to understand the relationship between these two notions. But what's important for our purposes is that structural facts, in the sense I have in mind, can characterize variable (and not merely invariant) features of experiences. As an example, shape experience varies widely across different visual experiences: one experience might be as of a circle and another a square. But any given shape experience will still have structure, and hence be characterized by some set of structural facts.

The central aim of this paper is to argue that there is a class of perfectly objective phenomenal facts. Given this, I'll focus for now only on the maximally austere structural facts defined above, which do not ascribe any non-structural properties except for the property of being an experience. These are the kinds of facts expressed by sentences like the following: 'experience x is a part of experience y ', 'the magnitude of experience x along dimension F is twice the magnitude of experience y along F ', 'the similarity relations between experiences $x_1...x_n$ are modeled by a metric d over the set S ', 'experience x is continuous in dimension F with respect to dimension G ', 'the structure of F -experiences is isomorphic to the structure of G -experiences'.

In practice, we will often be concerned with impure structural facts that have both qualitative and structural components. These are the kinds of facts expressed by sentences like the following: 'color experience x is part of visual experience y ',

¹³ This distinction is evinced in a remark by Richardson [2010: 239] about the visual field: "One way in which this feature of visual experience is structural...is that it's independent of the apparent objects of experience—it is a characteristic of visual experience in 'general'...The feature also deserves to be called 'structural' because...it 'structures', or 'organizes' [the qualitative character of visual experience]."

‘phenomenal red is more similar to phenomenal orange than to phenomenal green’, ‘experience x is continuous in pitch experience with respect to temporal experience’, ‘the structure of pleasure is isomorphic to the structure of pain’. I won’t say much about these kinds of facts, though there will be qualified versions of many of my conclusions that apply to such facts. In particular, my arguments will suggest that the structural components of these facts do not reduce their degrees of objectivity.

Structural facts, in the sense that I have in mind, partially characterize what it’s like to have the experiences they are about. Not every fact that ascribes structural properties to experiences satisfies this criterion. Consider the fact that experience x is identical to itself, or that there exists at least one experience, or that experience x has part y (where y is not itself an experience). Though these facts ascribe only structural properties and the property of being an experience, they arguably do not characterize what it’s like to have the target experiences. This means that while all structural facts ascribe structural properties to experiences, not all facts that ascribe structural properties to experiences are structural facts. This distinction is subtle but important. The core question of this paper is whether there are objective phenomenal facts, and only facts that characterize what it’s like to undergo experiences count as phenomenal facts.

There are many distinctions to be drawn within the class of structural facts. We can distinguish, for example, structural facts about particular experiences (such as the visual experience you are undergoing right now) versus phenomenal properties (such as phenomenal redness), structural facts about individual experiences versus sets of experiences, and structural facts about experiential wholes versus experiential parts. By default, I’ll focus on structural facts characterizing individual particular experiential wholes. But over the rest of the paper, I’ll be permissive about which kinds of entities structural facts quantify over. My arguments for the objectivity of structural facts will apply to any of the categories mentioned above.¹⁴

Let’s now look at a couple of examples of structural facts.

One of the best examples comes from *quality-space models*, or formal models

¹⁴ For brevity, I’ll always refer to the entities that structural facts quantify over as ‘experiences’. But my arguments remain applicable if we instead think of those entities as phenomenal properties, or sets of experiences, or some other phenomenal kind.

of domains of mental qualities.¹⁵ The most well-known is the three-dimensional model of color experiences (with hue, saturation, and brightness as dimensions), which specifies the similarity and magnitude relations between different color experiences. Imagine that we extricate all the qualitative content from a quality-space model, so that all we are left with is the formal structure (along with the specification that this is a model that characterizes the phenomenal character of some domain of experiences). This formal structure might, for example, be a bounded metric space. Though the model would be silent on the qualitative character of the target experiences (aside from them being experiences), it would still partially characterize the phenomenal characters of those experiences. If we were to learn that this same formal structure provided an accurate model of the color experiences of octopuses, or the echolocation experiences of bats, or the electromagnetic experiences of aliens, then we would learn something interesting and substantive about the phenomenal characters of those experiences.

As a second example, consider the *visual field*, or the aspect of visual experience by which we are aware of the visible space around us.¹⁶ The visual field constrains the spatial limits of our visual experience and the spatial relations between the elements of visual experiences. Though there is controversy over how exactly to characterize the structure of the visual field, it's clear that the visual field is structured. When we learn that the visual field is characterized by a metric space (rather than an affine space), that it's three-dimensional (rather than two-dimensional), or that it's less precise in the periphery (rather than uniformly precise across the whole field), we learn some interesting and substantive structural facts about our visual experiences.

We can contrast structural facts with *qualitative facts*, or facts about the specific qualitative characters of experiences. It's plausible that structural facts are often grounded in qualitative facts: for example, consider how the structural relations between color experiences that are captured by quality-space models are

¹⁵ See Clark [2000] and Rosenthal [2010] for general discussion of quality-spaces. See Lee [2021] on the formal structure of mental quality-spaces.

¹⁶ This characterization leaves open the nature of the visual field (and more generally, the nature of perception). See Martin [1992: 198] on a similar point. See Richardson [2010] and Soteriou [2011] for further arguments for the existence of the visual field. See Masrour [2015] on the geometry of visual space. Thanks to an anonymous referee for this example.

explained by the qualitative characters of those color experiences. However, this shouldn't be taken to entail that structural facts are themselves qualitative facts. Consider, by analogy, how macrophysical facts are grounded in microphysical facts even though macrophysical facts aren't themselves microphysical facts. In fact, I'll soon argue that even though structural facts characterize phenomenal character, the structural properties ascribed by structural facts can also be instantiated by non-experiential things. An interesting consequence will be that even though structural properties can be used to characterize what it's like to have an experience, structural properties aren't phenomenal properties.

§4 Objective Phenomenology

We now turn to my argument that structural facts about experience are objective phenomenal facts.¹⁷ A structural fact, in the sense I've defined, ascribes only purely structural properties and the property of being an experience. Hence, to understand a structural fact, one must be able to acquire (1) the phenomenal concept EXPERIENCE, and (2) the relevant structural concepts. Therefore, establishing that structural facts are objective requires arguing for two claims: first, that EXPERIENCE is objective, and second, that structural concepts are objective.

The Concept of Experience

We will start with the objectivity of EXPERIENCE. Let's begin with why understanding structural facts requires the concept EXPERIENCE at all. There may be a temptation to think that those interested in objective phenomenology ought to focus instead on *pure structural facts*, or facts that predicate only structural properties (and not the property of being an experience). However, showing that pure structural facts are objective would establish nothing about objective phenomenology, since pure structural facts aren't phenomenal facts.¹⁸ Since our

¹⁷ Outside analytic philosophy, some intellectual traditions that have addressed related issues concerning the structure of experience include early psychophysics (e.g., Fechner [1860]), phenomenology (e.g., Husserl [1913]), and logical positivism (e.g., Carnap [1928]).

¹⁸ Similarly, structural concepts aren't phenomenal concepts (since they do not attribute any phenomenal properties) and structural properties aren't phenomenal properties (since, as I'll argue later, they can be instantiated by non-experiential things).

concern is with phenomenal facts (rather than facts about pure structure), the relevant facts are those that specify that the objects they refer to are experiences. Without this requirement, the facts under consideration may as well denote physical objects or abstract objects (rather than experiences).

At first, there may seem to be a tension between my previous arguments about the subjectivity of phenomenal concepts and the idea that EXPERIENCE is objective. However, the previous arguments provided a diagnosis of why any given phenomenal concept is subjective, rather than an argument that all phenomenal concepts are subjective. The diagnosis was that acquiring phenomenal concepts requires introspection, abstraction, extrapolation, or recombination, and that one's experiential capacities constrain which phenomenal concepts one could acquire on the basis of those methods. This is compatible with holding that some phenomenal concepts are nevertheless acquirable from all points of view.

In fact, EXPERIENCE is a special case, since it's the maximally general phenomenal concept. Since every point of view must have some experiential capacities, there is no point of view that lacks the experiential capacities required to acquire EXPERIENCE. This doesn't mean that every subject actually possesses the concept or even that every subject could acquire the concept, but it does mean that every subject has the experiential capacities that are needed to acquire the concept. Hence, even though EXPERIENCE is a phenomenal concept, it's nevertheless objective.

Structural Concepts

Let's define a *structural concept* as a concept that denotes a purely structural property. Towards the beginning of the paper, I mentioned that the paradigm examples of objective facts are mathematical facts and physical facts.¹⁹ To understand these kinds of facts, one must possess the relevant structural concepts. Since mathematical and physical facts are objective, the structural concepts needed to understand those facts must also be objective. Unless we have reason to think there may be other classes of structural concepts that are subjective (an idea I'll

¹⁹ For example, Nagel [1974: 442] says that facts about the physical function of a creature are "objective facts *par excellence*..." In fact, at some points Nagel seems to regard mathematical and physical facts not only as paradigm examples of objective facts, but as partly fixing reference to which property the term 'objective' denotes.

address later), we ought to think that structural concepts in general are objective.

Previously, I provided a diagnosis for why any given phenomenal concept is subjective. The diagnosis appealed to the observation that for any point of view, there is a base set of phenomenal concepts acquirable through introspection and an expanded set acquirable through abstraction, extrapolation, and recombination. Since any given creature will have a limited set of experiential capacities, it's plausible that many phenomenal concepts will be unacquirable from at least some points of view. But this argument, which appeals to experiential constraints on the acquisition of phenomenal concepts, doesn't generalize in any obvious way to structural concepts. In other words, the diagnosis of why qualitative facts are subjective doesn't apply to structural facts.

The idea that structural facts are objective aligns also with our intuitions about cases. While humans cannot understand most phenomenal facts about bat, octopus, or alien experiences, it's intuitively plausible that we could understand structural facts about such experiences. If we were told that the echolocation experiences of bats have a certain kind of parthood structure, that the sensory experiences of octopuses have a certain number of dimensions of variation, or that the similarity relations between alien experiences are captured by a certain quality-space model, we would be in a position to understand those facts.²⁰

Are there other reasons for denying that structural concepts are objective?

Objection: Phenomenal Structure. Suppose that the structural properties that characterize experiences are fundamentally different from the structural properties that characterize non-experiential things. Then it may be that the structural concepts that are applicable to experiences are fundamentally different from the structural concepts that are applicable to non-experiential things.

Response: The supposition is false. Consider how we can coherently ask whether an experience and a non-experiential object have the same structure. We might wonder whether both spatial experience and physical space are best modeled using metric (as opposed to, say, topological) spaces, or whether temporal experience and

²⁰ Nagel [1974: 449] makes a suggestion in the same spirit when he says that "concepts alternative to those we learn in the first person may enable us to arrive at a kind of understanding even of our own experience which is denied us by the very ease of description and lack of distance that subjective concepts afford."

time itself are continuous (as opposed to discrete). Such questions are coherent only because we can ascribe the very same structural properties to both experiences and to physical phenomena. In some cases, a single formal structure is actually used to represent both the structure of a phenomenal feature (e.g., color phenomenology) and the structure of a non-phenomenal feature (e.g., color). Structural concepts may thus be thought of as topic-neutral concepts that can be applied to all sorts of phenomena: phenomenal, physical, abstract, and so forth.

Objection: Experience Requirement. To acquire a structural concept, one must have had an experience instantiating the corresponding structural property. To acquire (say) the concept PART, one must have had an experience that instantiates parthood structure. **Response:** The general principle behind this claim is dubious. Consider how humans can acquire the concepts UNCOUNTABLE INFINITY, IMAGINARY NUMBER, and TRILLION-DIMENSIONAL SPACE, even though it may be that human experiences do not instantiate the structural properties denoted by those concepts. Since the experience requirement doesn't hold for these structural concepts, it's plausible that it likewise doesn't hold for structural concepts denoting structural properties actually instantiated by our experiences.

Objection: Impure Structure. Some structural concepts, such as PHENOMENALLY-CONTINUOUS or REDDER-THAN, are subjective. Therefore, the structural concepts that figure into structural facts may likewise be subjective. **Response:** Let's distinguish *pure structural concepts* (which denote only purely structural properties) from *impure structural concepts* (which denote structural properties that have non-structural components). The concepts mentioned by this objection are impure structural concepts. But the concepts needed to understand structural facts are pure structural concepts. Though it's plausible that impure structural concepts are subjective, it's likewise plausible that pure structural concepts are objective.

I've now argued that both the concept EXPERIENCE and structural concepts are objective. It follows that structural facts about experience are objective. In what follows, I'll address two broader objections to my conclusion. The first objection claims that structural facts are not genuinely phenomenal facts. The second objection claims that structural facts are insignificant.

The Phenomenality Objection

Some might agree that structural facts about experiences are objective but question whether they are genuinely phenomenal facts. If structural facts do not count as phenomenal facts, then I haven't actually made a case for objective phenomenology. Now, this is partly a verbal issue about how we use the term 'phenomenal fact'. But I think the most natural ways of thinking about phenomenal facts lead to the result that structural facts are phenomenal facts.

To begin, structural facts exhibit many canonical marks of phenomenality. First, phenomenal facts are learnable through introspection. Second, phenomenal facts are determined by maximally determinate total phenomenal properties (properties that completely characterize what it's like to have an experience). Third, phenomenal facts give rise to an explanatory gap (with respect to physical facts). Structural facts exhibit all three of these marks. The first mark is obvious: for example, I can introspect the similarity relations that structure my color experiences and the spatial relations that structure my visual experience. The second mark is also obvious: any complete characterization of what it's like to have an experience will determine the relevant structural facts about that experience. The third mark, concerning the explanatory gap, will be argued for later in this section.

To be a phenomenal fact is to be a fact that characterizes what it's like to have an experience. Structural facts satisfy this criterion, since they characterize how experiences are structured. Note that this definition of 'structural fact' demarcates structural facts from other kinds of facts that do not characterize what it's like to have a given experience. These include (1) pure structural facts, which predicate only structural properties (for example, the fact that at least one thing exists), and (2) facts that ascribe structural properties to experiences but that do not characterize what it's like to have those experiences (for example, the fact that experience x is self-identical). The former aren't about experiences; the latter do not characterize what it's like to have an experience. None of the facts within these categories fall within the scope of what I claim are objective phenomenal facts.

Objection: Non-Structural Properties. In order for a fact P to count as an F-fact, P must ascribe more than merely purely structural properties to Fs. **Response:** Imagine someone who observes that most of our knowledge of the physical concerns its structure, and from this concludes that we hardly learn any physical facts through scientific inquiry. In other words, imagine someone who denies that

structural facts about the physical world are genuinely physical facts. That claim seems absurd: structural facts about the physical world just are a kind of physical fact. By parity of reasoning, structural facts about experiences just are a kind of phenomenal fact.

Objection: Incomplete Characterization. No set of purely structural facts can fully characterize what it's like to have an experience. **Response:** That is true, but it's also true that no set of facts purely about which phenomenal qualities are instantiated by an experience (such as the fact that an experience instantiates phenomenal red) can fully characterize what it's like to have an experience. To completely specify the phenomenal character of an experience, one must specify both which qualities are instantiated and how those qualities are structured.

Objection: Phenomenal Properties. Previously, I argued that the structural properties that characterize experiences can also be instantiated by non-experiential things. But it seems tautological that phenomenal properties can be instantiated only by experiences. It follows that structural properties are not phenomenal properties. From this, one might conclude that structural facts are not phenomenal facts because they do not ascribe phenomenal properties. **Response:** This objection has a false premise: structural facts *do* ascribe a phenomenal property—namely, the property of being an experience. But even if we set that aside, the objection still doesn't work. What it is to be a phenomenal fact is to be a fact that characterizes what it's like to have an experience. Since structural facts satisfy this criterion, structural facts are phenomenal facts.

This last objection raises a subtle but interesting point. Even though structural properties are not phenomenal properties, they can still characterize what it's like to have an experience. Therefore, the set of properties that can characterize phenomenal character is larger than the set of phenomenal properties. This may initially strike some as counterintuitive. But we ought to distinguish (*a*) whether a property can characterize what it's like to have an experience from (*b*) whether a property can be instantiated only by experiences. I've argued that structural properties satisfy *a* (which supports the claim that structural facts are phenomenal facts) even though they do not satisfy *b* (and hence are not phenomenal properties).

Significance

Some might agree that structural facts are objective phenomenal facts but

question the significance of this conclusion. Perhaps after we extricate all qualitative content from the facts under consideration, what we are left with is too impoverished to be worth caring about. Or perhaps what we care about in investigating experience is only knowledge of qualitative character, rather than knowledge of structure.

I mentioned earlier that human color experiences can be modeled using a bounded asymmetrical three-dimensional space. Suppose we are investigating two kinds of experiences of an alien species, which we label 'F-experiences' and 'G-experiences'. Suppose we learn that (1) the class of F-experiences is isomorphic to the class of human color experiences, meaning that the very same formal structure can be used to model both classes of experiences, and (2) the class of G-experiences is quite different in structure from the class of human color experiences, and is modeled instead via an unbounded symmetrical seven-dimensional space. Although learning these facts would still leave us in the dark about the qualitative characters of F-experiences and G-experiences, we would nevertheless acquire some substantive knowledge of their phenomenal characters. We would learn, for example, that what it is like to undergo F-experiences is structurally analogous to what it is like to undergo our own color experiences, and that there are more dimensions of variation amongst G-experiences than amongst our own color experiences.

It's worth returning at this point to the previous discussion of generality versus specificity. As a reminder, a phenomenal fact is more *general* when it predicates properties instantiated by a wider range of possible experiences, and more *specific* when it predicates properties instantiated by a narrower range of possible experiences. We are now in a position to see why our previous conjecture linking objectivity to generality is false when applied to all phenomenal facts (even though it remains plausible when restricted to phenomenal facts that predicate only qualitative properties). Some structural facts are highly specific, in that they predicate structural properties that characterize only a narrow range of experiences. But since structural facts are objective, even the most specific structural facts would still be perfectly objective. Consequently, specific structural facts provide a counterexample to our previous conjecture linking objectivity with generality. Moreover, this exhibits why structural facts are substantive: every structural fact with even a minimal degree of specificity provides information about the

phenomenal character of the target experience, in the sense of eliminating possibilities about what the experience is like.

Consider also structural facts about the physical world. Many philosophers are sympathetic to structural realism about scientific knowledge, according to which science yields knowledge only of the structure of the physical world (and not its intrinsic nature). Yet those who favor such views do not thereby conclude that our knowledge of the physical world is insignificant.²¹ By analogy, we should think that structural facts about experiences can be significant, even if they cannot capture all aspects of experiences. If it turns out that our prospects for understanding the experiences of other creatures are as good as our prospects for understanding the physical world, then we have grounds for optimism.

I've argued that structural facts about experiences are objective, phenomenal, and significant. I conclude that Nagel's speculative remark about an objective phenomenology was fundamentally correct.

The Structural Explanatory Gap

I'll conclude by making a case for the existence of an explanatory gap between physical facts and structural facts about experience.

The idea that there is an explanatory gap between physical facts and phenomenal facts is familiar. Even if we knew all the relevant physical facts about a creature (such as facts about behavior, physiology, and function), we still might wonder what it's like to be that creature, or whether that creature is conscious at all. In other words, physical facts do not epistemically entail phenomenal facts.²² However, discussions of the explanatory gap nearly always appeal to facts about seeing red, feeling pain, and other subjective facts. Since structural facts are objective, it may be tempting to think that structural facts are immune to the explanatory gap. I think otherwise: just as there is an explanatory gap between physical facts and qualitative facts about experiences, so too there is an explanatory gap between physical facts and structural facts about experiences. This means that

²¹ See Frigg & Votsis [2011].

²² I'll take the existence of the explanatory gap for granted, though I'll remain neutral on whether it has any metaphysical significance. See Levine [1983] for a classic discussion of the explanatory gap.

even though structural facts are epistemically tractable in one respect (they are objective), they are still epistemically intractable in another respect (they are epistemically isolated from physical facts).

The simplest way to see that there is a structural explanatory gap is with the following argument. Structural facts about experiences ascribe the property of being an experience. But there is an explanatory gap between physical facts and facts about which creatures are conscious at all. By consequence, it trivially follows that there is an explanatory gap between physical facts and structural facts. Otherwise, we would have to give up the supposition that there is an explanatory gap between physical facts and facts about which creatures are conscious at all.

What if we knew which creatures are conscious? It may be tempting to think that the structural explanatory gap is simply due to the fact that structural facts predicate the property of being an experience. If that were the source of the gap, then the explanatory gap between physical facts and structural facts would be relatively uninteresting. But even if we knew all the physical facts and facts about which creatures are conscious, the structural explanatory gap would remain. Imagine a creature where (1) we know all of the physical facts about the creature, (2) we know that the creature is conscious, and (3) we know nothing else about the phenomenal character of the creature's experiences. Suppose also there are two competing hypotheses about the creature's experiences. According to the first hypothesis, the creature's experiences have one dimension of variation and no mereological structure. According to a second hypothesis, the creature's experiences have ten dimensions of variation and a rich mereological structure. Neither hypothesis says anything about qualitative character; the hypotheses differ only with respect to which structural properties they ascribe. But the two hypotheses, though mutually exclusive, are both compatible with our prior knowledge. Even if one hypothesis turns out to be more plausible than the other, neither hypothesis is entailed (or ruled out) by our prior knowledge. This indicates that even the physical facts augmented with facts about which creatures are conscious do not epistemically entail structural facts about experience.

What does this mean for the prospects for developing an objective phenomenology? We began with the question of whether there is a way of understanding the phenomenal character of experiences that doesn't require one to have had the kinds of experiences under consideration. I've argued the answer is

'yes': there is indeed a class of objective phenomenal facts. That answer doesn't change once we grant the existence of the structural explanatory gap. And that answer is significant: there are phenomenal facts about even the most exotic experiences of bats and octopuses and aliens that we are in a position to understand, despite the fact that we occupy radically different points of view.

At the same time, the existence of the structural explanatory gap means that there are methodological challenges for actually acquiring knowledge of those objective phenomenal facts. In fact, the structural explanatory gap indicates that the methods for investigating the structure of experience may not be significantly different from the methods for investigating the qualitative character of experience. In both cases, discovering the relevant facts will likely require a combination of drawing abductive inferences from observations about behavior and function, constructing bridging principles that connect physical facts to phenomenal facts, and deploying a combination of first-person and third-person methods.

I think a balanced perspective on objective phenomenology requires recognizing both its prospects and its limits. There are indeed objective phenomenal facts, and seeing why that is the case advances our understanding of consciousness. But the fact that an objective phenomenology is possible doesn't automatically solve the challenges facing the investigation of consciousness.

Conclusion

This paper began with a speculative remark from Nagel. From there, I examine the objectivity and subjectivity of phenomenal facts. I argued that a phenomenal fact is subjective whenever the phenomenal concepts required to understand that fact are subjective, and that the subjectivity of phenomenal concepts is itself explained by the limits of introspection, abstraction, extrapolation, and recombination. Then I argued that structural facts about experience are objective. To understand a structural fact, one need deploy only the concept EXPERIENCE and structural concepts. The concept EXPERIENCE is objective because it's maximally general and hence possessable by every point of view. Structural concepts are objective because they are required for understanding the canonical examples of objective facts (such as mathematical and physical facts), because the same structural properties can be instantiated by both experiences and other kinds of things, and because they are free from the experiential constraints that limit the acquisition of

phenomenal concepts.

A core aim of this paper has been to show that structural facts about experience are interesting and important. Even though degree of generality correlates with degree of objectivity for facts purely about the qualitative character of experiences, structural facts can be highly specific yet perfectly objective. Even though structural facts are objective, there nevertheless remains an explanatory gap between physical facts and structural facts about experience. Even though the properties ascribed by structural facts characterize the phenomenal character of experiences, they are not themselves phenomenal properties since the same structural properties can be instantiated by other kinds of things. And, of course, even though many phenomenal facts are subjective, structural facts are objective.

For the purposes of carving epistemic joints, I've focused mainly on perfectly objective phenomenal facts. But for the purposes of actual inquiry into conscious experiences, we are more likely to be concerned with facts that have both structural and qualitative components. Only creatures that are inconceivably exotic (relative to our own point of view) would have experiences for which our understanding would be limited to only purely structural facts. Therefore, while only purely structural facts about experiences are perfectly objective, there may be a much larger class of facts that are understandable from our own points of view.

To make advances in objective phenomenology, we will need to develop better models of the structure of experience and better principles connecting phenomenal structure to physical structure. As we make progress, we will more deeply appreciate the prospects—and limits—of what we can understand about conscious experiences.

References

- Alter, Torin (2013). Social Externalism and the Knowledge Argument. *Mind* 122 (486).
- Atkins, Richard Kenneth (2013). Toward an objective phenomenological vocabulary: how seeing a scarlet red is like hearing a trumpet's blare. *Phenomenology and the Cognitive Sciences* 12 (4):837-858.
- Ball, Derek (2009). There are no phenomenal concepts. *Mind* 118 (472):935-962.
- Biro, John (2006). A point of view on points of view. *Philosophical Psychology* 19 (1):3-12.
- Block, Ned (2015). The Puzzle of Perceptual Precision. *Open Mind*.
- Carnap, Rudolf (1928). *The Logical Structure of the World*. Berkeley: University of California Press.
- Chalmers, David J. (2003). The content and epistemology of phenomenal belief. In Quentin Smith & Aleksandar Jokic (eds.), *Consciousness: New Philosophical Perspectives*. Oxford University Press. pp. 220-72.
- Clark, Austen (2000). Quality space. In Austen Clark (ed.), *A Theory of Sentience*. Oxford University Press.
- Crane, Tim (2003). Subjective Facts. In Hallvard Lillehammer & Gonzalo Rodriguez Pereyra (eds.), *Real Metaphysics*. London: Routledge. pp. 68-83.
- Farkas, Katalin (2008). *The Subject's Point of View*. Oxford University Press.
- Fechner, G., 1860, *Elements of Psychophysics*, H.E. Adler (trans.), New York: Holt, Reinhart & Winston, 1966.
- Frigg, Roman & Votsis, Ioannis (2011). Everything you always wanted to know about structural realism but were afraid to ask. *European Journal for Philosophy of Science* 1 (2):227-276.
- Howell, Robert J. (2007). The knowledge argument and objectivity. *Philosophical Studies* 135

(2):145-177.

Hume, David. (1738–40). *A Treatise of Human Nature*. Various printed.

Husserl, Edmund. 1913. *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy*. Trans. F. Kersten. The Hague: Nijhoff.

Johnston, Mark (2007). Objective mind and the objectivity of our minds. *Philosophy and Phenomenological Research* 75 (2):233–268.

Kolarik, Andrew J., Cirstea, Silvia, Pardhan, Shahina, & Moore, Brian C. J. (2014). A summary of research investigating echolocation abilities of blind and sighted humans. *Hearing research* vol. 310 (2014): 60-8. doi:10.1016/j.heares.2014.01.010

Lee, Andrew Y. (2021). Modeling Mental Qualities. *Philosophical Review* 130 (2):263-209.

Levine, Joseph (1983). Materialism and qualia: The explanatory gap. *Pacific Philosophical Quarterly* 64 (October):354-61.

Margolis, Eric and Laurence, Stephen, "Concepts", *The Stanford Encyclopedia of Philosophy* (Spring 2014 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/spr2014/entries/concepts/>>.

Martin, Michael (1992). Sight and touch. In Tim Crane (ed.), *The Contents of Experience*. New York: Cambridge University Press.

Masrour, Farid (2013). "Phenomenal Objectivity and Phenomenal Intentionality: In Defense of a Kantian Account.". In Uriah Kriegel (ed.), *Phenomenal Intentionality*. Oxford University Press. pp. 116.

Masrour, Farid (2015). The geometry of visual space and the nature of visual experience. *Philosophical Studies* 172 (7):1813-1832.

McGinn, C. 1983. *The subjective view*, Oxford, , England: Oxford University Press

Mensch, James R. (2000). An objective phenomenology: Husserl sees colors. *Journal of Philosophical Research* 25 (January):231-260.

-
- Merlo, Giovanni & Pravato, Giulia (forthcoming). Relativism, realism, and subjective facts. *Synthese*:1-17.
- Moore, A. W. (1987). Points of view. *Philosophical Quarterly* 37 (146):1-20.
- Mulligan, Kevin and Correia, Fabrice "Facts", *The Stanford Encyclopedia of Philosophy* (Winter 2020 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/win2020/entries/facts/>>.
- Nagel, Thomas (1974). What is it like to be a bat? *Philosophical Review* 83 (October):435-50.
- Nagel, Thomas (1986). *The View From Nowhere*. Oxford University Press.
- Papineau, David (2006). Phenomenal and perceptual concepts. In Torin Alter & Sven Walter (eds.), *Phenomenal Concepts and Phenomenal Knowledge: New Essays on Consciousness and Physicalism*. Oxford University Press. pp. 111--144.
- Rabin, Gabriel (2011). Conceptual mastery and the knowledge argument. *Philosophical Studies* 154 (1):125-147.
- Reiss, Julian and Jan Sprenger, "Scientific Objectivity", *The Stanford Encyclopedia of Philosophy* (Winter 2020 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/win2020/entries/scientific-objectivity/>>.
- Richardson, Louise (2010). Seeing empty space. *European Journal of Philosophy* 18 (2):227-243.
- Rosenthal, David (2010), "How to Think about Mental Qualities," *Philosophical Issues: Philosophy of Mind*, 20 (October): 368-393.
- Searle, J R: *The Mystery of Consciousness* (1997) p.122.
- Soteriou, Matthew (2011). The perception of absence, space and time. In Johannes Roessler, Hemdat Lerman & Naomi Eilan (eds.), *Perception, Causation, and Objectivity*. Oxford University Press. pp. 181.
- Watzl, Sebastian (2017). *Structuring Mind. The Nature of Attention and How it Shapes*

Consciousness. Oxford, UK: Oxford University Press.