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## **Deflating the Hard Problem of Consciousness by Multiplying Explanatory Gaps**

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### **Abstract:**

Recent philosophy has seen a resurgence of the realist view of sensible qualities such as color. The view holds that experienced qualities are properties of the objects in the physical environment, not mentally instantiated properties like qualia or merely intentional, illusory ones. Some suggest that this move rids us of the explanatory gap between physical properties and the qualitative features of consciousness. Others say it just relocates the problem of qualities to physical objects in the environment, given that such qualities cannot be derived from the non-qualitative properties of objects, and it doesn't resolve the problem of consciousness either. I argue that such an outcome is welcome: if the physical world is full of explanatory gaps, then the mind-body explanatory gap is not so special. Moreover, the explanatory gaps regarding qualities of objects are less puzzling than the brain-qualia gap. In order to counter traditional worries concerning realism about the qualities of objects, I introduce 'imperfect realism' as an alternative to color pluralism and complex reductionism, which accommodates realism in the face of widespread perceptual error. I conclude with a discussion of how this 'multiple gaps view' sits better with a naturalistic framework compared to the Galilean-Cartesian account of qualities.

**Keywords:** Hard Problem of Consciousness; Meta-Problem of Consciousness; Perception; Explanatory Gap; Color Realism; Mysterialism; Naturalism

Işık Sarıhan

## **Deflating the Hard Problem of Consciousness by Multiplying Explanatory Gaps**

### ***Introduction***

Qualities are making a comeback. Centuries after the Galilean-Cartesian view eliminated qualities like colors, sounds, and smells from the physical world and relocated them in the mind, a new wave in philosophy urges us to put them back where they belong. This move is also supposed to help us with closing the explanatory gap and solving the hard problem of consciousness. (Byrne 2006, Fish 2009) However, some think that putting qualities back into the physical world doesn't resolve the explanatory gap: it just relocates it to perceptible objects, and it doesn't solve the hard problem of consciousness either. (Pautz 2010; Liu 2021; Cutter forthcoming) In this paper, I present some reasons to agree with the latter view and I explore the implications of relocating the explanatory gap and multiplying the number of such gaps in the world; and I conclude that this proliferation of explanatory gaps might not be so problematic. Indeed, the view that emerges has attractive consequences. I call it 'the multiple gaps view'.

I begin by introducing the problem of the explanatory gap for the Galilean views, and in the second section I introduce the explanatory gaps facing the non-Galilean views. In the third section I argue that the non-Galilean explanatory gaps are less puzzling than the Galilean ones, and in the fourth I discuss some objections. In the fifth section I explain how non-Galilean views further deflate the hard problem of consciousness by multiplying the gaps and therefore making the mind-body explanatory gap less special. I conclude by assessing how the multiple

gaps view sits within a physicalist-naturalist framework and briefly considering an epistemic (rather than metaphysical) resolution of the problem of explanatory gaps.

### *1. Galilean views and the explanatory gap*

A quality is a property that is not structural, relational, dispositional, or quantitative. For metaphysicians this may not be an exhaustive definition of qualities, but the definition should suffice for our current purposes situated within philosophy of mind, given that many properties we encounter in sensory experience, whether we think of them as inhering in the mind or being out there in the world, seem to fit this description. The knowledge we acquire via experiences of color, sound, smell, heat and the like do not seem to be exhausted by knowledge of facts regarding how things are internally structured, how they relate to each other, what they are disposed to do, or how their properties can be measured quantitatively. They seem to be, simply, the way some things are in themselves. The Galilean-Cartesian tradition has deemed qualities to be merely in the mind, and has banished them from the physical world, where there is thought to be room only for non-qualitative properties. (For a historical account, see Ben-Yami 2015.) Some Galilean philosophers kept referring to colors of objects, but this meant various non-qualitative properties (or ‘secondary qualities’) that cause color experiences, and not the qualities that seem to be revealed to us in experience – ‘perfect’ or ‘Edenic’ colors as Chalmers (2006) calls them.

Qualities ‘being in the mind’ can mean two things. Qualities can be ‘in the mind’ in the sense that they are indeed instantiated in our experiences; that our experiences are colored with some ‘mental paint’ (Block 1996). If experiences are brain events, this means that the brain realizes these qualities (or, in reductivist frameworks, it means that there is an identity relation between neural properties and these qualities.) This is the qualia view and also the sense-data view under

some formulations (Kind 2008; Wright 2008; Farkas 2013; Papineau 2021). Qualities can also be ‘in the mind’ rather than ‘in the world’ in the sense that they merely appear to exist: nothing instantiates these qualities. This is a version of the strong intentionalist (representationalist) view that is eliminativist about qualities (Rey 1998; Pautz 2020).

Qualities did not have a place in the Galilean mechanistic philosophy, but locating them in the mind and turning them into ‘qualia’ (or ‘qualitative character of consciousness’, or uninstantiated properties that merely appear to exist) also proved to be problematic when a physical-functional account of intelligent behavior became available. It seemed to many philosophers that we could not derive facts about these qualities (or how uninstantiated qualities are represented) from non-qualitative facts (often referred to as ‘physical facts’) about the brain, and therefore there is something missing from the physical explanation of consciousness. The knowledge we have of neuroscientific facts about an organism does not preclude us from coherently imagining zombie cases where the organism is not conscious (Chalmers 1996), or inverted spectrum scenarios where the experiences of two subjects are inverted color-wise with respect to each other despite being physically identical (Levine 1983). This was one of the sources of what Levine (ibid.) termed ‘the explanatory gap’. The hard problem of consciousness is the problem of bridging this gap (Chalmers, ibid.).

## ***2. Explanatory gaps for non-Galilean views***

The Galilean tradition remains strong, with many contemporary representatives who deny that colors and other qualities are properties of the mind-external objects we perceive (Johnston 1992; Robinson 1994; Hardin 1993; Chalmers 2006; Maund 2011; Goff 2019; Pautz 2020). These include not only straightforward eliminativists about color, but also those who

understand the term ‘color’ as referring to non-qualitative properties that are not revealed to us in experience but cause experiences that instantiate certain mental qualities.

Recently, some philosophers have advocated for putting the qualities back into the world. Some of them, Russellian monists, do this via an indirect route: if qualia cannot be reduced to or be identified with non-qualitative properties of the brain, then qualities should be fundamental, intrinsic features of the brain and of all other material objects. This line of reasoning, however, is still Galilean in that it deems the qualities we find in experience as internal items, and the main variant of the Russellian view, panpsychism, views qualities as properties that exist only when experienced.<sup>1</sup> A more direct route to putting qualities back into the world is taking our perceptual experience at face value and saying that such qualities belong where they experientially seem to belong: they inhere in perceptible objects.

Some have claimed that this move makes the explanatory gap regarding consciousness disappear, by getting rid of the intrinsic qualities that were kicked into the mind from the material world, and by putting the gap regarding qualities in its original place (Byrne 2006, Fish 2009). Others point at the fact that this move has costs, as putting qualities back into the world creates new gaps between qualities and micro-physical properties of objects (Pautz 2013; Cutter forthcoming), given that, as it is the case with the mind-body gap, there is no a priori way to derive the apparent qualities of an object from its light-reflectance profile or any other non-qualitative property.

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<sup>1</sup> There is a subset of Russellian monism, ‘panqualityism’, where qualities can exist without being experienced, though the qualities we experience are nevertheless qualities of the brain. See Chalmers 2015 for a discussion of panqualityism, where the view is attributed to James 1904; Mach 1886; Russell 1921; and Coleman 2015. For a general overview of Russellian monist views, see Alter & Nagasawa 2015 and Goff 2017.

This variety of the explanatory gap has not received the same amount of attention that the mind-body explanatory gap has received, but it has been discussed under various names, and parallels between the two gaps have been drawn. Johnston (1996) calls it ‘the mind-body problem on the surfaces of things’, and Shoemaker (2003) calls it the ‘objective explanatory gap’. Byrne (2006) provides a useful illustration of how the qualia-body problem could as well arise as a ‘body-body problem’ or a ‘color-body problem’ if the history of philosophy would have developed differently. Moran (2021) has recently argued that both types of explanatory gap are an instance of ‘the problem of grounding the qualitative’. The problem is also related to what Sellars (1963) has articulated as the problem of reconciling the scientific image of the world with its manifest image, and Kalderon (2007) argues that the contemporary mind-body problem construed in terms of qualia is a particular response to this older problem. Shoemaker (ibid.), similarly thinks that the ‘subjective explanatory gap’ is a problematic result of ‘kicking the phenomenal character upstairs’. Some 17<sup>th</sup> century philosophers were also aware of the consequences of this move, such as Cudworth (1678), who noted that ‘prior to the seventeenth century, atomistic theories of matter which eliminated purely qualitative properties like color from the physical world were invariably associated with the belief in the existence of an immaterial soul’ (as paraphrased in Allen 2016:177).

These ‘objective’ gaps are similar to the gaps regarding qualia: why do physical properties of a green object realize the color green rather than the color red or some alien color, or realize some color at all rather than be a colorless ‘zombie object’? If these questions make sense, it means that colors of objects are not logically entailed by what we know about their lower-level physical properties. Indeed, it is rather intuitive to think that acquiring merely propositional knowledge regarding non-qualitative facts about green objects will not grant us knowledge about the intrinsic nature of this color quality: even if there are no such things as qualia and therefore Mary the Color Scientist (Jackson 1982) has not lacked knowledge of them, she

nevertheless lacked full knowledge of the colors of objects, even though she knew what non-qualitative properties colors are correlated with.

Furthermore, these ‘objective’ gaps don’t seem to be the only problem introduced by the counter-Galilean move. The move solves only one aspect of the hard problem of consciousness: it frees us from the question of how the brain instantiates phenomenal qualities, but we still face the question of why we are conscious at all and how our consciousness picks out the worldly qualities it picks out. (Pautz 2010; Liu 2021)

Some might argue that there are versions of the non-Galilean view where the hard problem and the explanatory gap does not arise, thanks to particular accounts of the qualitative content of experience. As my primary interest in this paper is in exploring the consequences of facing multiple explanatory gaps rather than thoroughly arguing that non-Galilean views do face these problems, I will simply assume that non-Galilean views have not presented us with a full solution to the hard problem of consciousness. However, it might not be clear to some why a hard problem still remains when we do away with qualia and the like, so I provide a brief exposition of the reasons for thinking that such a problem remains.

Two prominent versions of the non-Galilean view are relational theories of consciousness and versions of strong intentionalism that adhere to realism about the represented qualities. Relationalism holds that experienced objects constitute the experience in cases of veridical perception and the qualities that figure in experiences are qualities of these objects (Martin 2004; Fish 2009; Allen 2016). Intentionalism holds that experience is a matter of being directed to (or representing) intentional objects, and the qualities that figure in experiences are qualities that the intentional object is represented as having (Harman 1990; Lycan 1996; Tye 2000; Byrne 2001; Crane 2003). Now, consider the most sophisticated reductive intentionalist or relationalist theory of consciousness you can think of, where colors and other qualities do exist in the world and there is the right kind of relation between you and these qualities that you are experiencing,

relations explicated in usual physical or topic-neutral terms (in the style of Millikan 1984, Fodor 1990 or Dretske 1995.) I, for one, find no *prima facie* trouble in conceiving of the following scenario: some neural structures in my brain causally co-vary with instances of the color green (or satisfy some other relevant criteria) and the neural vehicles are activated in the right sort of way by the presence of a green object that is in front of my eyes, but I experience them as having a red color or an alien color, or I do not have any experiences at all.<sup>2</sup> Relationalist and intentionalist views might be free from the intuitions generated by Nagel's bat cases (1974) and Jackson's Knowledge Argument (1982), because according to these views, what underlies the gap in such cases is a lack of knowledge about the object of the experience and not some internal property of the experience; but intentionalism and relationalism are subject to zombie cases and inversion cases just like the Galilean views.<sup>3</sup>

Before moving on, it is worth to briefly digress and note that the quality-theoretical approach to the hard problem presents an interesting candidate for solving what Chalmers (2018) has

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<sup>2</sup> See Pautz 2013 for a similar line of thought. Chalmers (2015) raises a similar issue which he calls the 'quality/awareness gap' when discussing panqualityism: existence of a quality does not imply that anyone is aware of it, hence postulating intrinsic qualities of matter is not enough to solve the hard problem.

<sup>3</sup> Inverted spectrum is sometimes understood as referring solely to qualia-theoretical cases of inversion where two subjects' qualia are inverted with respect to each other while they (allegedly) represent the same property of the perceived objects, and therefore neither subject is undergoing a non-veridical representational state. But it is also possible to imagine a spectrum inversion scenario within the framework of intentionalism, where *appearances* of the colors of objects are inverted, 'appearances' understood in a truth-conditional sense, with at least one of the subjects undergoing a systematic illusion. Relationalism should also permit these cases: even if it may not allow for 'appearances' to be involved in the veridical cases, it should allow for the existence of illusions and therefore the *prima facie* conceivability of a color invert who is subject to a systematic illusion.



termed ‘the meta-problem of consciousness’, the problem of explaining why we tend to judge that consciousness is hard to explain physically. The source of the problem intuitions in all cases seems to be the logical impossibility of deriving facts involving qualitative properties from facts about non-qualitative properties (how non-qualitative properties realize qualitative properties, or how they represent them, or how they acquaint us with them.) The following oft-quoted remark by McGinn, which attempts to express our puzzlement about consciousness and which subtly relies on the distinction between the qualitative and the non-qualitative, can be re-appropriated as a general problem regarding the gap between the two types of properties: ‘How can *technicolour* phenomenology arise from *soggy grey* matter? [...] Somehow, we feel, *the water* of the physical brain is turned into *the wine* of consciousness, but we draw a total blank on the nature of this conversion.’ (1989:349, emphasis added.)<sup>4</sup>

### ***3. The explanatory gaps of the non-Galilean view are less puzzling***

Having agreed with the critiques of the non-Galilean views that such views do not solve but relocate the gap regarding qualities and they do not solve the hard problem of consciousness, in this section and the next I will argue that non-Galilean views nevertheless deflate the hard problem of consciousness. I take it that there is a difference between being presented with an explanatory gap and being puzzled about this gap, and it is possible to maintain that there is an explanatory gap while freeing ourselves from some aspects of the puzzlement. I will attempt to show how non-Galilean views make this possible. The non-Galilean view deflates the hard

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<sup>4</sup> The quality-theoretical framework may also help us meet the constraint set by Chalmers that a theory of the meta-problem should explain why we have the problem intuitions in the case of phenomenal states but not in the case of cognitive states, given that cognitive states, according to most accounts, do not present us with qualities.

problem of consciousness in two ways: by getting rid of qualia and offering us more resources to make sense of (if not fully explain) the qualitative content of experiences, and by introducing many new qualitative gaps in the world (between lower-level properties of objects and their qualities) and therefore reducing the mystery of consciousness to one among numerous mysteries.

Of the two non-Galilean views available, my sympathies lie with intentionalism (as I think that relationalism fails to account for non-veridical experiences), so I will present my points in an intentionalist framework; but nothing hinges on this in the context of the discussion below, the main idea can be incorporated into a relationalist framework by modifying a few details.

Accepting that there is an ‘objective’ explanatory gap posed by relocating qualities back onto perceptible objects means that the realist view of qualities will be a non-reductive one.<sup>5</sup> I do not wish to repeat the available arguments for non-reductivist views concerning specific qualities like color (Campbell 1994; Allen 2016; Cutter 2018); my aim is to motivate the current non-Galilean view not by offering a thorough defense, but by presenting its attractive implications for the hard problem of consciousness.<sup>6</sup>

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<sup>5</sup> Historically, intentionalism was motivated by reductive physicalist aspirations concerning consciousness, and it has often been defended together with reductivism about sensible qualities (as in Byrne and Hilbert 2003), but the main intentionalist idea is compatible with non-reductivism both about the mind and about sensible qualities.

<sup>6</sup> Even though some non-reductive views of qualities are termed ‘primitivist’, I will not use the label to refer to the current view, as the view is open to the possibility that sensible qualities might not be ‘primitive’. Perhaps they are not basic, brute properties of matter, but grounded in more basic properties in ways that we do not understand.

The first way in which the current account diminishes our puzzlement regarding the hard problem seems rather simple: by putting qualities back into the world, we get rid of the problem of explaining how qualia relate to the brain. It is easier to make sense of how different brain states can enable experiences with radically different qualitative contents when we are able to postulate relations or quasi-relations<sup>7</sup> between the organism and the qualities of the perceptible world. The phenomenon becomes less puzzling even in the absence of a complete theory of experiential content. This has been considered an advantage of the intentionalist theory, but a full appreciation of this advantage requires filling in a few more details: with the qualia theory, we not only fail to understand how non-qualitative properties relate to qualitative ones, but also fail to understand how these neural properties, which are various configurations of a relatively small set of electrical properties, can realize qualities of radically different types. The differences among these properties could perhaps explain the differences within qualitative spectra in a given modality, say, how a ‘blue quale’ differs from a ‘green quale’, but we are still left with a puzzlement regarding how these differences could realize completely different quality spaces, such as the phenomenology of color and the phenomenology of sound. The non-Galilean view of color and sound also present explanatory gaps, but these gaps are less puzzling compared to the gap regarding mental paint: the lower-level properties of objects that constitute the basis of qualities like color, sound and smell are more different to each other than are the

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<sup>7</sup> By ‘quasi-relations’, I mean properties that are sensitive to mind-external reality, but nevertheless independent of an organism’s current or past environments; for instance, properties that have something to do with the dispositions or powers bestowed upon an organism by its intrinsic physical features, dispositions or powers that are defined in respect to counterfactual scenarios that involve the organism’s current intrinsic states and possible states of quality instantiations in the world. Whether such quasi-relations can account for phenomenal content is beyond the scope of this paper, but I include here this theoretical possibility to motivate reflection on a neglected variety of intentionalism where the content is determined narrowly while still involving worldly qualities in the broadest possible sense, and where there are more prospects for dealing with non-veridical experiences and Swampman cases.

lower-level properties of the brain that allegedly realize color qualia, sound qualia, and smell qualia. For instance, the difference between the lower-level properties that realize sounds and those that realize the colors of objects is plausibly greater than the difference between the brain states that realize sound experiences and the brain states that realize color experiences.

Before moving on to the second way in which the non-Galilean view deflates the hard problem of consciousness, I will consider some objections to the claim that the ‘objective’ explanatory gap is preferable to the ‘subjective’ explanatory gap.

#### ***4. Objections to the claim that the explanatory gaps of the non-Galilean view are less puzzling***

Below are three possible objections to the view that properties of perceptible objects are better candidates for being the grounds of qualities:

*Objection from Insufficient Variety for Grounding:* One may say that distal properties do not fare better than the properties of the brain, because just as brain states are different configurations of electrochemical properties, properties of perceptible objects are ultimately configurations of a limited variety of properties at the fundamental level.

This objection can be met in two ways. We can say that even though it is probably true that there is limited variety at the base level, what we should be comparing is the variety at a higher, more complex level that is relevant to the case at hand. However, one might reply that this could be true for neural states too: even though the properties of brain states are limited when it comes to what type of properties they are, the configurations of such electrochemical properties can be diverse enough to ground the diversity of qualia or qualitative content. Intuitively, the configurations of basic physical phenomena seem to have a more interesting diversity than neural configurations, but not everyone might share this intuition; so a better response would be to bring up the possibility that sensible qualities might be grounded not in configurations of

things at a higher level but in a variety of base-level properties that are fundamentally different from each other: hue might be grounded in properties that have something to do with wavelengths of electromagnetic radiation, and timbre might be grounded in properties that have something to do with kinetic energy; assuming that these phenomena are fundamental in the relevant sense.

*Objection from Computation Role:* Perhaps the level of electrical or chemical properties of the brain is not the right level to look at when searching for the right kind of properties that can ground qualities. Perhaps the right level is the computational role, where there is a greater variety of properties in regard to the informational content of the computational processes that underlie our experiences. If wavelengths of electromagnetic radiation and kinetic energy are good enough bases for hue and timbre, then neurocomputational properties like ‘being reliably activated by wavelengths of electromagnetic radiation’ or ‘being evolutionarily selected for co-varying with kinetic energy’ are also good enough.

Here we have an unusual case where a Galilean theory uses the theoretical resources associated with non-Galilean forms of representationalism. The view doesn’t seem *prima facie* incoherent, but it is unclear what motivations one would have to opt for a Galilean view if one possesses a sophisticated information-theoretical account of content determination. Why not just say that colors are grounded in wavelengths, rather than saying that they are grounded in neural properties that carry information about wavelengths? Given that both the non-Galilean view and the information-theoretical versions of the Galilean view need some sort of mapping between experienced qualities and lower-level properties of distal objects, one would need an independent motivation to eliminate qualitative properties from the environment.

*Objection from Grounding Laws:* A typical objection to the non-Galilean view of color is that there is a poor mapping between physical properties of objects and the qualities they seem to instantiate. An object can seem to have different colors in different conditions or to different

observers, physically dissimilar objects can seem to have the same color in some conditions, etc., but there is a good mapping between our brain states and the qualities we experience (Hardin 2008, Cohen 2009, Pautz 2017). If we leave aside some very complex, observer-dependent and context-dependent physical properties, there doesn't seem to be a scientifically acceptable physical property shared among objects that appear to have a particular color; on the other hand, structural or functional properties of neural states seem to map better onto the structural properties of experienced colors, such as their similarity relations and the unique-binary distinction. These are problems that have traditionally created obstacles for color realism.<sup>8</sup>

In order to counter this objection, I will introduce what I call 'imperfect realism' about qualities: objects really instantiate qualities but our experiences of qualities may be accurate only rarely. Among all the various physical bases of objects that appear to have a certain color, it is conceivable that only one of them is the actual base for that color. That is, perhaps most of the objects that appear to have that color don't really have that color or have a slightly different shade of that color. Perhaps there is an element in our olfactory system that systematically distorts our perception of smells, and perhaps it is very rare that we smell things as they really are, if we ever do. This massive misrepresentation involved in our representation of qualities is compatible with qualities being real properties of objects that relate to their lower-level properties, even though it might be hard, or perhaps impossible, to match particular qualities with their real non-qualitative bases. Furthermore, all of this is compatible with successful, adaptive interaction with the environment: it is enough for an organism if perception tracks the world imperfectly but close enough. One might worry that the realist view does not have more

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<sup>8</sup> For a recent account that provides a taxonomy and defense of related objections, see Cutter forthcoming.

advantages than the Galilean view that deals with the problem of color by reference to mere appearances, if the realist view admits that perceptual error is so widespread and that we may not have an empirical or philosophical method to find out what are the real colors of objects, and if all these create new explanatory gaps in the physical world. But such a line of thought brings us back to the question of what determines the representational content of such appearances, and we have seen that the best candidate for that job is some relation or quasi-relation between representational vehicles and actual qualities of objects. As for the problem of numerous explanatory gaps that realism creates, in the next section I will discuss the advantages of repositioning the explanatory gap and multiplying the number of gaps in the world.

So, even though we have a way to counter this objection, we can admit that there was a mistake made by those who, in attempt to account for color appearances in a realistic fashion, have introduced very complex properties (Byrne and Hilbert 2003) or multiple colors for single objects that cannot be perceived simultaneously (Mizrahi 2006; Kalderon 2007). While these philosophers were trying to argue that colors are real properties of environmental objects, they took up the over-ambitious task of establishing that our color experiences are veridical in most ordinary circumstances. But the reality of color and how frequently our perceptual experiences veridically represent our immediate environment are independent questions.

*Objection from Homogeneity:* Qualities, such as colors, look homogeneous. It has been suggested that physical objects cannot serve as grounds for color given that an object with a particular color cannot be composed of things that do not have that color, and it is unintuitive to think of physical particles as having color or some color-like property that would ground or explain perceptible colors. (Cutter forthcoming, Sellars 1963) But the problem of homogeneity ceases to be a problem once we admit that the physical world is gappy, as I will do in the next section, and once we adopt versions of Russelian monism or mysterianism which are at home with the idea that we lack the relevant knowledge about the physical world that would enable

us to fully understand how the lower-level properties ground or relate to perceptible qualities, which I will explore in the final section.

### ***5. Multiple explanatory gaps deflate the hard problem of consciousness***

So here is where we are: if it is really the case that intentionalism faces an explanatory gap, and if the qualities that our experience represents are real and irreducible properties of perceptible objects in the world, then it looks like we end up with a multitude of gaps. There is an unresolved question regarding how non-qualitative properties explain the fact that we have experiences and that our experiences represent the qualities that they do, and there are many other unresolved questions regarding how non-qualitative properties of objects explain their qualitative properties.

The good news is that this picture with a multitude of gaps can help us make better sense of the world and can diminish our puzzlement about the mind, compared to the picture where the mind-brain explanatory gap is the only explanatory gap we are faced with.<sup>9</sup> Strange as it may sound, the picture with only one explanatory gap rather than multiple explanatory gaps generates a bigger puzzlement at the end of the day. Many philosophers who hold that there is a mind-body explanatory gap also hold, tacitly or openly, that this is the only explanatory gap in our naturalistic picture of the world: there might be explanatory problems or philosophical puzzles at the foundational level of physics, but it is often taken as a default assumption that between the levels of physical reality we do not encounter explanatory gaps other than the mind-body gap. But if there is an explanatory gap between mind and matter, and if there are no other phenomena in the world that generate explanatory gaps, then we are faced with an additional

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<sup>9</sup> Allen briefly explores a similar idea in his 2016:182-183.



kind of puzzlement about the gap between the mental and the physical being the *only* explanatory gap there is; and given the special place mental phenomena occupy in our value system, this becomes a puzzlement that has an aura of eeriness to it, radiating a somewhat mystical flavor: we understand how higher-level properties in nature are realized by lower-level ones, only until we climb the ladder all the way up to the mental realm. We have a neat account of how the physical world is, which involves particles behaving in various ways and, in their more complex forms of organization and interaction, constituting chemical phenomena. Through countless random incidents spread across eons, this leads to the emergence of biological mechanisms, including neural mechanisms that enable complex adaptive behavior. But just before attaining completeness and perfection, this elegant naturalistic picture receives a big blow of mystery when we reach the peak: *consciousness*. Just before we are about to acquire some knowledge of the highest value, we are betrayed by the very phenomenon that makes knowledge and value possible in the first place.

According to the multiple gaps view, however, the explanatory gap regarding consciousness is not so special. It might have its peculiarities, but at the end of the day it is not the only gap we are faced with. Acknowledging our limitations in explaining the world should provide us with a humility, a humility that can also help us overcome some of our puzzlement regarding consciousness. Yes, we do not perfectly understand in-virtue-of-exactly-what we have experiences, and in-virtue-of-exactly-what these experiences represent colors and sounds and thereby acquaint us with them. But we also do not understand in-virtue-of-exactly-what things have colors and sounds and other mundane qualities they have. Consciousness is puzzling, but it presents many other puzzles to its possessors.

## ***6. The multiple gaps view and the question of physicalism, naturalism and fundamentality***

How does the multiple gaps view fit into a physicalistic or naturalistic framework? Once we reject the Galilean-Cartesian tradition that has defined these terms via the exclusion of qualitative properties, we can say that qualities are non-reducible physical properties of physical objects, and consciousness is a physical feature of physical organisms, and these are all parts of the natural world. This a somewhat lightweight claim, but not a vacuous one. These properties are physical in the sense that they are not properties of a non-physical substance, and they are natural in the sense that they are not subject to supernatural forces; they are subject to natural laws and how they relate to other properties can be studied by natural sciences. Qualities of objects and our experiences of these qualities seem to have something to do with the lower-level properties studied by physics, chemistry, and neuroscience, even though they cannot be reduced to them.

The multiple gaps view has similarities with Russellian monism, as it seems to suggest that science can reveal the non-qualitative properties of reality but cannot reveal its intrinsic nature. However, Russellian views have been developed primarily within the qualia paradigm where *introspecting* our conscious experience, rather than experiencing the world, is the only way we can have direct knowledge of intrinsic qualities of the physical world, and most Russellian views propose that consciousness (understood as instantiation of qualia) is among the basic, fundamental features of the physical world. However, there is at least one version of the Russellian view (such as ‘secondary quality Russellian monism’ found in Cutter 2018) which proposes that it is sensible qualities (and not qualia) that are the fundamental features of the physical world.<sup>10</sup> The view espoused here, in its current form, is silent on the matter of fundamentality. I neither suggest, nor deny, that we should postulate qualities or ‘proto-

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<sup>10</sup> Robinson (2016) also places qualities at a more fundamental level than non-qualitative properties of physical objects, though he does this not in a Russellian monist framework but an idealist one.

qualities' all the way down in order to explain how an object can have a certain color, or that the relation between qualities and non-qualitative properties are bare facts of the physical world, or that qualitative facts ground other facts. Even though these are somewhat attractive solutions, it would need to be shown that they have a stronger justification than an epistemic view where the relation between qualities and non-qualitative properties is simply beyond the comprehension of the human mind, or perhaps incomprehensible by any epistemic subject.

While the jury is still out on the case of McGinnian mysterianism versus Russellian monism (and see Stoljar 2006 for hints of a synthesis), I want to conclude with some remarks that tend to favor an epistemic resolution for explanatory gaps. It should be admitted that these gaps do introduce some imperfection into the grand naturalistic project of understanding how everything hangs together in the natural world. Nevertheless, the multiple gaps view offers a diagnosis of this failure: we fail in this endeavor not because there are no natural laws that necessitate facts about sensible qualities of objects and our experience of these qualities, but because there is no a priori or a posteriori way to derive such laws of necessitation that connect purely quantitative, structural and functional facts on the one hand, and facts regarding qualities and our experience of them on the other. Indeed, it seems that welcoming some imperfection within the naturalist project is itself a proper naturalistic attitude. According to the best naturalistic view we currently have, our basic epistemic faculties have emerged via evolution by natural selection and via structural limitations that govern what kind of epistemic faculties can possibly emerge in the physical world. As emphasized in the mysterian literature (McGinn 1989; Chomsky 2000), it is highly unlikely that this process would yield creatures that can explain and understand every single aspect of reality. We might have reasons to believe that there is a small but real chance that the process could yield such creatures, but there is no reason to be confident that we humans are among them. Within a naturalistic framework, the idea that we are most probably not such perfect epistemic subjects makes better sense. Accepting that

there is an explanatory gap about consciousness makes our epistemic faculties sit better with the naturalistic paradigm, and accepting that consciousness is not the only source of explanatory gaps in the world makes consciousness look less troubling within this grand picture.

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