Epiphenomenalism from the Causal Exclusion Problem

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Abstract

I argue for a naturalistic metaphysics leading to the conclusion that epiphenomenalism best fits the data. It is a reductive ontology in which all powerful properties are those existing at the fundamental level posited by physics. It is *not* reductive about the essence of *phenomenal* properties; they assuredly exist, but in a way distinct from what third-person scientific data can display.

I begin with physicalism and conclude that all common definitions are deficient in some respect; a working definition is presented. Next, I examine the causal closure of the physical, which forms the basis for accepting epiphenomenalism. Given the truth of causal closure, there is no room for any dualism regarding powerful properties distinct from the bottom level of physics, which concerns fundamental fields and particles. I then discuss the causal exclusion principle and argue against several attempts to preserve genuine mental causation.

Finally, I examine the ontology of properties within the framework of their categorical and dispositional natures. I argue that all properties are categorical in essence. Physics reveals the dispositional subset of these categorical properties. Yet I contend there is one exception existing outside the dispositional domain: qualia. They are purely categorical, existing as "phenomenal aspects," a unique mode instantiated only by certain organisms. They are ontologically real but causally inert.

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Declaration

I declare that this is my own original thesis with me as the sole author. No part of this thesis has been submitted for other qualifications at any university. All sources are acknowledged as references.

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Key Terms and Definitions

- *Aspects:* An aspect is generally defined as a partial feature of something. However, I shall reserve the usage of the term for the unique definition it has as a role within Dual-Aspect Monism. Namely, it is a mode of an object with regards to either being mental or physical. It is a brute category, not the same as properties. It is more analogous to Spinoza's (1677) category of "attribute" insofar as it is a fundamental expression of the same collection of property instances that inhere in an object. For example, a conscious brain has a physical aspect insofar as we consider its property instances through the lens of third-person physical language. That same object (including the same property instances) has another mode of expression as a phenomenal mind.
- *Atoms*: the simplest micro-constituents of reality[1] at the "lowest order" [2] of existents.
- *Categorical properties:* Categorical properties are the *intrinsic* (having that character regardless of other properties, for example causal) qualities of something, quiddities "which need not be seen as an additional entity over and above the property itself" (Orilia, Francesco and Michele Paolini Paoletti, 2025). They are *not necessarily* causal. They give the character of an object regardless of dispositional powers, but that is not to say they cannot be dispositional in nature too. Indeed, that is Heil's position (2003).
- *Dispositional properties:* I use this term as distinct from the definition of "dispositions." A "disposition" is an abstract second-order property,[3] usually understood as a macroscopic property. I reserve the term "dispositional property" as a first-order power of an entity. For example, an electron has the dispositional property of charge, but it is not merely some hypothetical power, it is always instantiating it merely by existing. Furthermore, it is absurd to suggest that a disposition such as fragility could exist without a categorical basis such as an arrangement of atoms, whereas it is a fair question

[1] Thus, I am using the term in Democritus's sense, not what scientists nowadays call atoms: a proton with an electron orbiting it. An electron and photon would therefore be an "atom" according to my definition.
[2] Indeed, there is a logical possibility that there is no *lowest* level of reality (See Benovsky, 2015). What matters for my purposes is whatever is the lowest level of reality that physics can posit.
[3] Given overarching concerns for parsimony and the avoidance of reifying second-order properties, I agree with Jackson that a vase breaks not because it possesses the disposition of fragility, but because "because it possesses a certain lower-level qualitative property" (quoted from Heil, 2003, p. 89). Therefore I reject the non-reductive existence of dispositions.

to ask if *charge* is purely a dispositional property, without the need for categoricity at all.[4]

Dispositional and categorical properties are logically distinct, but I affirm Heil's position that for any property it is both categorical and dispositional. However, where I disagree is that I believe there is an exception to this rule, namely qualia. All properties within the natural sciences are powerful categorical properties, whereas I believe qualia to be inert.

- *Dispositions:* "A thing has a disposition to become F in a situation G if it is such that were G to come about, it would become F. Dispositions, potentials, or powers are thus certified by the outcomes that would arise in specified circumstances" (Blackburn, 2008, p. 49). For example, a glass, being such that it if were hit lightly, would break, has the disposition of fragility.
- *Essence:* "The basic or primary element in the being of a thing; the thing's nature, or that without which it could not be what it is" (Blackburn, 2008, p. 57). The essence of something such as "water" would include that it is made of H2O, for without it, it would be something else.
- *Events:* Events are "spatiotemporal particulars, i.e. particulars occupying spatiotemporal regions, where occupying a region means existing every- where in it and nowhere outside it" (Latham, 2003, p. 271). This is a neutral definition of the term I stick to but the debate between Kimian events vs Davidsonian events will arise later when relevant.
- *Exclusion Problem*: I also use the phrase "causal exclusion problem" to refer to the same issue. It is the idea that if there are supposedly competing causes for some event, especially since one type of phenomena (e.g. physical tokens and laws) is sufficient in providing the powers and reasons for said event to occur, one of those apparent causes appears dubious and is probably best excised.
- *Formal reality:* "The formal reality of a thing is the kind of reality the thing possesses in virtue of its being an *actual* or an *existent* thing (AT VII 41–42, 102–4; CSM II 28–29, 74–5). For example, given that the Sun is an actual or existent thing, it possesses formal

[4] For example, Blackburn believes that in the scientific worldview, it is "dispositions all the way down" (quoted from Stoljar, 2001, p. 258).

reality. By contrast, given that Pegasus is not an actual or existent thing, he does not possess formal reality" (Smith, 2025).

I use this concept as a tool for deflationary metaphysics. For example, an ontologically realist reading of Functionalism has some role property F exist distinct from the physical base as a higher-order property. If instead, a type-identity theorist does not commit to F but only to the base realisers, whereby F is merely a concept, they could say that F itself has no formal reality; only its realisers do.

- *Higher-level vs Higher-order:* Under my definition, properties that are "distinct" from the base realiser are *higher-level* because the concepts and focus are on how to understand them as logically distinct, with no ontological commitment. For example, consider "redness" as F. Trope theorists would say F is a higher-level property, merely a concept for example. *Higher-order* properties are higher-level concepts but with a realist ontological reading of them, postulating a new property. So philosophers of a realist understanding will say F is a higher-order property, e.g. a Platonic universal.
- *Modes:* Modes are "particularized ways objects are" (Heil, 2003, p. 138). I agree with John Locke's (1689) supposition that "All things that exist are only particulars" but such a position is not assumed from the outskirts of this thesis since it would beg the question against many arguments made against the causal exclusion principle for example. This is discussed in Chapter 3. Therefore, bearing common usage, "properties" are universals[5] (though without committing to immanent or platonic entities) and "property instances" are modes.
- *Natures (of objects):* By the "nature of an object" I mean the way it is, especially regarding its particular essence at the time, namely all its property instances that make it what it is (including accidents). For example, if a token sample of water lost a few drops, its nature has changed.
- *Nature [capital N]*: the totality of our world.
- *Objects:* An object is the bearer of properties, such as electrons, chairs, etc. I count humans as objects though they are also subjects (an agent which possesses mental

[5] I agree with Heil that universals as a distinct category of being is bizarre and best avoided. They are "mysterious. Transcendent universals mysteriously exist "outside" space and time (p. 148), while immanent universals are mysteriously capable of being "wholly present" in different places at the same time (pp. 132-6)" (Lowe, 2006, p. 472).

states). I use this word as neutral between whether or not each object is a substance, or whether substance monism is true (I avoid speaking about substances for this reason), or if the bundle theory is true whereby objects are *constituted by* rather than the *bearer of* properties.

- *Properties:* A way that an object exists. I use this term to denote a very broad ontological category: the general characteristics or features of entities. The term is generally understood as denoting universals, but when I use the term, it does not presuppose any metaphysical commitment, such as to universals (as an ontological category, e.g. immanent or platonic), or tropes, or other forms of reifications. This is so unless directly inspecting its nature, for example as I do when I discuss Alexander's dictum (that properties are powers) or the essence of aspects.
- *Qualia:* Qualia are phenomenal qualities. "Phenomenal qualities are what distinguish pains from itches, the smell of a rose from the smell of an outhouse, the feeling of rage from the feeling of embarrassment, and so on. Tokens (instances) of phenomenal qualities are referred to by many terms, including 'sensations', 'experiences'... Following Nagel, they are often said to be events such that there is something it is like to have them" (Robinson, 2010, p. 539). The word as I use it does not inherently imply anything metaphysical, e.g. whether it is non-physical or not. It is merely what it is like to feel something.
- *Qualitative:* The intrinsic what-it-is-like quality of something. It "... should not be understood as being mental, but as being categorical, i.e., not dispositional" (Bihan, 2019, p. 7).

  [When discussing Heil's identity theory of properties, I use "qualitative" as equivalent to "categorical" as Heil does (Heil, 2003)].
- *States (of being):* A state is some configuration of an object at some moment in time.

Acronyms

- CCP = causal closure of the physical
- NRP = non-reductive physicalism/physicalists
- RM = Russellian Monism

Main Introduction

The purpose of this thesis[6] is to argue for epiphenomenalism. That is, no event occurs *in virtue of* phenomenal properties/modes. This is Metaphysics[7] from the perspective of Philosophy of Mind.[8] I present a worldview that is reductive about which causes are real vs illusory, favouring the concrete fundamental causes described by physics. Though I shall argue that the only *powers* (that which makes a difference to what kind of event follows from the last) that exist are sparse properties of fundamental physics, even if there were genuine higher-order properties of science such as distinct macroscopic neurobiological properties, my argument for epiphenomenalism would still go through. This is because first-person qualia properties would still be inefficacious (See Chapter 3 especially). That is, qualia supervene on third-person neurobiological properties, and so their causal power would be pre-empted at that level by such properties if full reductionism down to fundamental physics were not true.

I will discuss the nature of the mind-body problem and mental causation. At the end, I will promote my theory called "dual-aspect epiphenomenalism" as the best solution to the problems raised throughout this thesis. I will present a worldview that avoids postulating higher-order entities or properties. In some sense, "higher-order properties" are a logical device: properties of properties. I argue that if such second-order properties are reified as something existing distinct from the lower base of first-order properties, it is better left expunged from the ontology. I contend that these "higher-order properties" are conceptually convenient heuristics which allow us to group concepts together; they do not refer to autonomous powers.

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[6] Strawson (1959) made the insightful distinction between "descriptive metaphysics" and "revisionary metaphysics." He was concerned with the former: to describe our conceptual schema for understanding the world, respecting to the best of his ability common-sense intuitions. Revisionary metaphysics is not satisfied with maintaining the truths of what might appear obvious to the average person; it uses technical principles to rework our ideas about the world. That is what I do in this essay.

[7] I use the term "Metaphysics [uppercase "M"]" for the study of Metaphysics. For example, "in Metaphysics we ask questions about the nature of reality." When I use the word as lowercase it denotes the reality of something, e.g. "what is the metaphysical referent of concept F?" The same goes for the word "Ontology vs ontology."

[8] Ladyman (2007) chastises Jaegwon for not referencing physics textbooks, taking this to be an example of how the outlook of a philosopher of mind is out of touch with actual claims made by physicists. Melnyk (2003) suggests that the way that philosophers of mind tackle Metaphysics or Philosophy of science differs from angling the analysis from the standpoint of other kinds of metaphysicians and philosophers of science

Higher-order properties (properties not reducible to the fundamental base of physics) are especially invoked in the Philosophy of Mind to account for and explain the existence not just of conscious mental phenomena, but their causal powers too. When I speak about "mental" phenomena or the "mind" as something to be explained in relation to physical phenomena, I usually mean its phenomenal[9] dimension, since that is what creates the most difficulty for squaring everything together in the Philosophy of Mind. I argue that such higher-order properties cannot save mental causation. Given the causal closure of the physical and exclusion problem, it suggests that no event occurs *in virtue* of phenomenal properties.

Of course, there *are* other options to save genuine mental causation, such as Panpsychism. I will briefly note here that this theory is unnecessarily exotic. It is a costly postulation of a new property in everything that exists, of which we have no evidence for it. Furthermore, in Section 3.13 I argue that this view and its kin, i.e. Russellian Monism, do not even help to save mental causation. I also discuss the view in more detail in Chapter 6, Part 3.

I rule out not just substance-dualism but also non-reductive physicalism, which I shall from hereon use the acronym NRP to denote "non-reductive physicalism" and "non-reductive physicalists." If NRP really does allow for genuine powers from the mental it would need to be distinct from the physical, which would be a kind of emergentism and that would classify as a kind of dualism that runs counter to what the empirical sciences tell us about powers in the world.[10] In other words, interactionism or "downwards causation," is ruled out. That is, a property instance of a higher order of existence than atoms (and their combinations) imputing a difference into the lower order of being, i.e. the physical events, does not happen in reality. NRP is anathema to epiphenomenalism because it contains the idea that there is genuine mental causation

However, the theory I advocate in this thesis, a type of epiphenomenalism, might fit the bill of NRP as it is traditionally defined. That is, that some properties are not reducible to the underlying physical base but at least supervene on it.[11] So far this is consistent with epiphenomenalism as I espouse it. So, a terminological point: when I speak about "NRP" I presume it to be a theory which does not believe that mental properties are inert. I then discuss

[9] I take these terms to be synonymous. A "quale" would be the noun form.
[10] Or otherwise lapses into epiphenomenalism or overdetermination, per the exclusion argument.
[11] Though I believe a quale is ontologically distinct to the brain, since they are different modes of being, they are nevertheless identical in some sense. For example, their space-time location and are expressions of the same set of "properties."

non-reductive theories and how they are unsatisfactory, first, for causal reasons, and second, even their claim to "explanatory" usefulness is not enough to save genuine mental causation. I argue that this is because there are a plurality of ways to explain a series of events, or conjure up laws that describe such events, but that does not reliably track the actual powers that are doing the work. Though we can make up higher-level laws in psychology that ignore physical composition, for example, this is merely a conceptual device. The laws insofar as powers are concerned, are to be found in the token realisers alone.

The mind, insofar as other dimensions are concerned, e.g. intentionality and action, I take to be relatively unproblematic to fit these phenomena into some kind of functional, behavioural, or computational analysis. In what follows, I use the term "functional" in a metaphysically neutral sense, simply a nexus of cause and effects. By this I mean that it is consistent with a reductive type-identity view restricted to first-order properties. It should not be conflated with "Functionalism" as a unique theory, which posits non-reductive second-order role properties that exist and operate independently of their physical realisers.

Furthermore, in analysing the "mind" I usually do not mean it insofar as it is considered to be the core functionality with a range of abilities such as navigating the world or even the ability to use language; simple robots and computers also have complexity in that way, but to say they have "minds" is uninteresting in that sense. They are generally conceived to be inanimate in that they lack a first-person perspective, phenomenal properties. Whether or not a sophisticated robot could have consciousness, i.e. phenomenality, is a more important question, and the kind of property this thesis focuses on. In other words, the concern is with Chalmers' (1995) "hard problem" of consciousness. Nevertheless, much of the arguments given about genuine mental causation are about higher-order properties in general, and I argue that these, along with phenomenal properties, are inefficacious. Regarding the former, if they are proven to be inefficacious then parsimonious considerations would have us remove them. With higher-level phenomena such as qualia, they are proven to be inefficacious, but parsimony does not allow us to remove them because of the concrete certainty by which we experience their existence.

To be clear, when I speak of "consciousness" I generally mean the minimal sense of some kind of phenomenal awareness, for example something as simple as the taste of garlic or the sight of a red patch of colour. A sensation or experience from the subjective element. Some people mean by "consciousness" a special sophisticated ability that is unique to humans: that

of being self-aware. That is not a focus for this thesis. To address this issue briefly here, I understand higher self-awareness of our states of mind to be functionally reducible to a brain that has some parts of its brain communicating back and forth upon itself, e.g. in the case of scrutinising one's visual memory, that consists in information from the occipital lobe being presented more intensely in cycles within the forebrain than otherwise. Self-awareness is this neural relay *plus* the quale of this process which the brain produces alongside it.[12] That there is a quale at all, not unique to self-conscious being, is the problematic entity of interest for the purpose of this essay.

I will have argued that NRP, through the supervenience or realisation dependence relation, etc. cannot have their cake and eat it. Namely, either all the powers reside in the base order of affairs (atoms), or it becomes an emergentism that rejects the causal closure of the physical and science generally. There are two senses of the term "emergentism", one being that something new arises from the parts, which I believe is true of qualia. The other, a proper name for a theory "Emergentism" whereby the higher-order properties gain powers not contained within physics. I then go on to discuss how we should understand qualia in the grand scheme of things. Ultimately, however, once those matters of causation are addressed, I focus more on the *nature* (qualitative, if you will) of phenomena. Just as Chalmers was ultimately dissatisfied with the tenets of physicalism in its capacity to explain mental phenomena, so too will I wrap up by proposing an alternative to physicalism as traditionally understood, in the form of a new version of epiphenomenalism.

I argue that the concept of realisation, common in characterisations of physicalism, is a useful way to theorise about the functional or causal isomorphs of physical properties, but that needn't commit us to the *ontological* reading whereby there is not a complete identity between higher-level phenomena and fundamental physical phenomena (e.g. See Melnyk, 1995, p. 372). For any object that exists, i.e. an entity that is the bearer of properties,[13] e.g. a table that has a shape and mass, there is a physical characterisation of it that is fully sufficient to explain all its

[12] Analogously, I take it that a "belief" is an intentional functional state reducible to a behavioural profile of dispositions to act in a certain way. An inanimate robot would therefore have beliefs if its behaviour were complex enough. On the other hand, humans (and some animals) are unique in that they additionally have a quale alongside that functional state. For example when I believe that "2 + 2 = 4" in the moment of awareness I might sound it out in my head. Or the gut belief as feeling, that something is wrong, etc. If I am not thinking about it, then it is merely a functional state without a quale.

[13] Whether an object is the substance that undergirds its properties as commonly supposed, or *constituted by* properties as in the "bundle theory" will for now be an aside.

powers in the scheme of events that follow in a series of moments in time. Where does that leave conscious experiences of organisms? I contend that they exist as being constituted and instantiated by physical states, but as unique modes of expression, which have no bearing on the causal chain of events, i.e. the nature of why that specific nature of event followed from the last event.

Of course, the force of arguments in favour of the Exclusion Principle, and whether the properties in question were relevant causes to the following event, depend on one's notion of the essence of "causation." Some NRP are fine with the idea that a property was a cause simply because it was present in the preceding event. This could be cashed out in counterfactual terms. However this is too weak. It would include properties that were merely irrelevant or parasitic on the real powers that determined the nature of the following event. Furthermore there is the issue of a "common cause." An epiphenomenalist can rightfully say she chose the fruity perfume rather than the musky one because it smelt better. That does not mean the effect of the smell was in virtue of it being a subjective phenomenal property. It was merely the fact that there is a common cause (neural state) for both the olfactory sensation and the behaviour. I discuss this issue in various ways later, including event causation, "in virtue of" causation, etc.

The motivation for my rejection of higher-order non-reductive existents is that we should prefer an explanation of some phenomenon that is satisfactory yet need not posit what is either a new entity or a new type of entity, and also that non-reductive relationships between properties or objects leads to certain issues regarding causation. I argue against these non-reductive relationships on the basis of the following three considerations:

1) Ontological concerns, e.g. parsimony and simplicity.
2) Problems with cashing out the essence of the non-reductive relationship in a way that is congenial to Naturalism and Nominalism.
3) Their conflict with the laws of physics, i.e. I argue that the proper understanding of our physical world is that the fundamental laws are sufficient to govern the behaviour of all objects that exist.

The *evidence* that provides backing for our ontological postulations comes from what we know about causation from the scientific worldview.[14] In accordance with a naturalistic way of

[14] In the later sections, I provide some caveats about what kind of "evidence" we should respect.

reasoning, I argue that to extend beyond the most minimal reading of the scientific theories as being unjustified and grossly inflationary. My solution to the three difficulties with non-reductive relationships is that we adopt a reductive kind of Monism, especially regarding causation, and furthermore that eschews reified second-order properties. Therefore all properties that exist are on the order of fundamental physical entities, and all the modes of those physical entities.

I provide arguments against the very *relationship* of supervenience and realisation due to problems with their ontological nature. For example, supervenience is sufficiently vague that its reputed ontological relationship does not seem to exist as something unique and worth positing. Morris (2014) argues that *supervenience* as a supposedly unique view, when thoroughly cashed out, ends up as being no different from either an Identity Theory[15] or Non-Reductive realisation theory of mind. As for realisation, it is not clear how the realised entity is supposed to be dependent on its physical conditions in a way that is in tune with our naturalistic Metaphysics.[16] Nor can it viably make sense of genuine causation *via* mental properties.

In the first part, I attempt to analyse what is the nature of the physical. I argue that if we adopt an open understanding of physicalism then a problem with physical monism may be resolved, i.e. that it is perfectly acceptable that all properties which do in fact exist are material in essence. That is, if we accept Stoljar's o-conception of properties (physical properties including intrinsic ones), even phenomenal properties may reasonably be understood as physical. In line with Kim (1997), when I speak of higher-*order* properties, I intend its purported *existential* weight, i.e. a commitment to something ontologically distinct from the subvenient base. I use the word "level" of reality as a more general term which does not necessarily imply anything new about what exists, unlike higher "order" properties. For example, I contend that macro-*level* properties (under a given understanding) do not commit to higher-*order* properties (Kim, 1997, p. 291), though nominally they may be referred to as higher-level properties without any metaphysical postulation/commitment.

Other versions of realisation, e.g. in Melnyk's understanding, do believe that all properties, even the higher-order properties, are physical themselves due to their meeting his

[15] I use the term "Identity Theory" physicalism to be equivalent to "Central State Materialism."

[16] Furthermore, the Realisation Theory bears no explanatory power when it comes to explaining how Mind arises from inanimate material compared with the Identity Theory. Given this, ceteris paribus, an identity relationship between higher-level and lower-level properties is to be preferred since it is invoked safely in the sciences.

criteria of what makes something physical. However, I still argue against Melnyk's version of physicalism because of its attachment to higher-order properties which I intend to show are otiose and better left out. Furthermore, that such properties end up being epiphenomenal anyway. Rather than bestowing reality onto macro-*order* phenomena and special sciences, it would be more reasonable to propose that everything reduces to the micro-level atoms (or macro-*level* insofar as its causal profile is that of the micro-level).

I propose a parsimonious ontology, whereby the bottom level of reality is all that truly exists, as the most fundamental (a position called "Ontological Fundamentalism" by Markosian. See Brown & Ladyman, 2008, p. 26) existents, denoted by my speak of "atoms." Therefore, all that exists are atoms or modes of atoms and their collections/relations with each-other, including qualia. I do not wish for the term "atom" to be taken strictly as that which concerns the traditional Classical conception of elementary physics, but instead, I use the term to refer to the rather general concept of what are the most basic or fundamental constituents of reality,[17] whatever that may be (e.g. quantum energy *field*s rather than *particles*).

Next, I examine the issue of the Causal Closure of the Physical principle, its motivations, plausibility, and its success in its intended purpose. In espousing my metaphysics, I commit to the view of powers whereby properties of an object contribute power to it. I then direct my analysis to physicalist theories and how we should choose amongst them, but I also devote some attention to addressing Dualism as a plausible competing Metaphysical thesis. I conclude that Dualism is a costly and unnecessary metaphysic of mind given empirical and theoretical virtue reasons.

I then discuss the nature of properties and powers more generally, as doing so will sweep away much of the haze and puzzles involved in speaking about causation. I argue that phenomenal properties[18] are modes of aggregates of their micro-base, but through a different

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[17] Again, this may be a vague characterisation. To elaborate, consider that which cannot further be dissected into more basic types of existents. Whatever is not derivative of more than one kind of physical essence is what I consider an "atom." For example, under this meaning, an "electron" would be an atom; the spatial region it occupies (as a cloud) is not made of anything except the essence of electronhood.

[18] I often use the following terms as being somewhat synonymous with the term "phenomenal": such as "experiential," or "conscious" (in some senses, for example as "P-Consciousness" to use Block's (1995) terminology) for adjectives, and nouns "qualia," "sensations," or "experiences." Of course, some of these terms, such as sensations, do not only denote a phenomenal aspect but could be understood as its physical correlate as well, e.g. a neural state. Therefore, I believe it makes sense to say the "quale of a sensation" as being separate to its physiological instantiation for the meaning of the term "quale" does not inherently denote anything other than a phenomenal qualitative appearance.

relation (aspect) to that of other functional special-science predicates. This is because the relationship concerned with phenomenal properties and brain-states is based on a *real ontological* difference in expression, such that the numerical identity of phenomenal mind and brain consist in sharing the same set of properties. Therefore it is a kind of dual-aspect monism.

On the other hand, special-science properties, differ only nominally from each other and with the fundamental sciences; their ontological referents are identical, though the "sense" and language they use differ. For example, there is no difference in the ontological nature of what are the properties assigned by physics, compared with properties said to be assigned by Economics for example. Economics and physics with regards to the reality of what they posit differ only conceptually, or by name, whereas the way qualia differ from brain-states are not. With qualia there is a new ontological category all together, the *first-person* phenomenal type of being.

My views are congenial to the type-identity theorist and Eliminativists insofar as all entities and powers of the special-sciences reduce to physics. This is because I believe that everything that exists is material or supervenes on the material. The problem is how to cash this out. After all, there seems to be two aspects to the term "material," one is captured by the language of physics, the other is beyond that. For example, I believe that phenomenal properties are material in some sense but cannot be captured by the scope of physics which deals only with observation, interactions concerning *third-person* existence. Furthermore, there may be categorical properties of physical things that we do not know how to detect. Imagine something like dark matter that didn't even interact with gravity.

What remains constant throughout the thesis is an advocation for reductionism of powers: all powers in the world exist at the bottom level of physics. Furthermore, even phenomenal modes of existence, despite being distinct from their dispositional[19] mode of existence (that mode which concerns the ability to affect other objects), exist at as fully concrete and determinate, as first-order properties of the bottom-level rather than as abstract higher-order properties.

Higher-order properties play two important roles regarding the ontology of the mind:

[19] One might say "material mode" of existence here, but later on I will pry the concepts such that it is more accurate to say "dispositional." This is because the "material modes" in my view, are just those properties which can impact other objects, i.e. dispositional properties.

1) They have a role in unifying discrete and disparate objects and phenomena, reifying what is the common property amongst those instances (or members of a set), say, “pain” amongst octopuses and humans. Higher-order properties in this sense are similar to universals. They appear when certain other conditions are met, for example the having of a certain kind of composition or function.
2) They (token properties, i.e. property instances) exist “above” or apart from their token subvenient base. It therefore provides a substantial location for a phenomenal property that isn’t reducible to its subvenient lower-order matter. This is distinct from (1) because (1) is a general kind of entity that concerns a numerically identical shared property amongst varied realisers. Whereas a non-physical property of (2) can be a first-order property concerning only the single objects, not groups.

Nevertheless there are reasons to suppose that the physical(type) is not identical with the mental(type), in that the physical has metaphysical priority over the mental regarding the following facts. First, there exist many objects which are physical but do not have a mental dimension; the mental is not as fundamental as the physical because it exists as a proper subset of the latter. Or to characterise this in a different light, everything that exists has categorical properties, but mental categorical properties cannot exist except as inhering in an object which has physical categorical properties. Under the classical formulation of neutral monism, such as Russell’s, this distinction does not hold. The mental and the physical would be equally dependent on each-other for everything in the world that exists; I reject this because I do not believe the intrinsic basis for properties are phenomenal in any sense. Furthermore, all powers of the mental, even according to NRP, get their particular powers from physical realisers, so again there is a metaphysical priority to the physical.

Elpidorou (2017) stresses that a physicalist worldview must make sense of the metaphysical priority of the physical over the mental. He says of the identity theses (such as mind-brain identity) that it will not count as physicalism in his view because it needs be such that the “physical is metaphysically privileged with respect to the mental insofar as the latter metaphysically depends on the former but not vice versa” (2017, p. 437). Though my view is a kind of identity theory insofar as dual-aspect monism is, it still allows for the asymmetricity of the physical having ontological priority over the phenomenal since the former is necessary for any object to exist whereas the latter is not.

Next, concerning particular token cases of a mind's existence, what is its relationship to its base brain? If it is one of *identity* "then both the token of pain and the specific physical state are rendered equally fundamental" (2017, p. 441). However, it seems to me that one response could be that this needn't be the case is that it depends on how the identity is cashed out. That is, the mental is not equally as fundamental as the physical within an identity-theory, even among token cases, because the two are only identical in the sense of inhering in the same object. Those particular token phenomenal properties can exist *only* when generated by the amalgamation of those specific physical components whereas that physical state "could" exist without those mental properties. One might claim that the identity theory makes no distinction between the existence of phenomenal properties with brain properties, but I believe this is mistaken. Even they admit of a first-person perspective, and it only exists because some physical systems are the right constitution to instantiate it.

Such an idea gets to the heart of counterfactuals and possible worlds. Take a token case of a brain state, B5 at time t5 instantiating a quale, M5. Could B5 exist without M5? I believe that in this world, it could not. It is a law of nature that if the right kind of physical state exists, there *must* exist that corresponding phenomenal property. So in that sense M5 is just as fundamental as B5, for neither could, in this world, exist without the other. The reason for this is that this world is modified in a way that when matter is arranged in a certain way, the property instances form together in a way, from composition, that constitute a phenomenal experience.

One could argue that such a fact is analogous to the composition relation of nuclear atoms. It just so happens that in this world, when there are two electrons tied to a neutron, that hydrogen ion will instantiate the property of negative charge. Why does that happen? It is one of those matters at the core of the make-up of this universe. Why does space-time curve when there exists a massive object? Gravity is the name for this phenomena but it does not give us a deeper explanation. We must be satisfied with the mere fact that the world exists in this multifaceted way. It is a law of nature.[20] Just as it is a law of nature that certain neurons in the brain constitute conscious experiences.

Now, it might be retorted, in another possible world B5 could exist without M5 because the physical is self-sufficient whereas mental properties have a more dependent lesser kind of existence. Physical objects could plausibly exist without the mental properties that depend on

[20] The word "law" here is being used to describe the direct nature/structure of reality rather than being about the passage of events.

them whereas the mind must exist only as depending for its existence ontologically on a physical base. This is in line with the argument about zombies. However, I do not believe that zombies are actually possible in some other world, but only that it is a useful thought experiment. Namely, if they had the same physiology, and we know actions are caused by the chemistry of the body, then of course zombies would behave the same. Intuitions about whether they "could exist" *in other worlds is too difficult to determine*, for we could not possibly know what could be true there. When it comes to the modal consideration of what is *metaphysically possible,* people will disagree, and one intuition cannot disprove another. For example, some believe that a disembodied soul is possible in other worlds, others say it is not. Whether conceivability entails possibility, I am doubtful, for there is no way to know. We cannot observe these other worlds.[21]

This thesis is about providing a reductive view of Nature that invokes no abstract entities in its ontology. Reductive materialism is right about the fact that everything that exists is material and that all powers are material powers. What it lacks is the ontological wherewithal to account for modes of existence that are purely categorical in nature, e.g. qualia. Matter only covers what exists insofar as the outer existence of objects are concerned. Epiphenomenalism takes phenomenal properties seriously. Therefore the idea is that all of nature follows only the laws of physics, and all properties are first-order properties, including aspects. That being said, I offer a weaker argument later for those who are not convinced by the reductionism of all special-sciences to physics, yet, I argue, the main crux of this thesis holds. Namely, the phenomenal mode of being is causally inert.

[21] Other than those worlds cannot contain any logical contradictions, presumably.

Chapter 1: Physicalism and Philosophy of Science

1.0 Physicality

Why do philosophers of mind and metaphysicians concern themselves so strongly with the physical? Contemporary philosophy is almost exclusively physicalist in its ontology and this is no doubt due to the success of the natural sciences. This is captured by Crane's reference to Quine's claim that the physical sciences provide a way of "limning the true and ultimate structure of reality" (Crane, 2000, p. 5). I shall begin by outlining the nature of the physical and which conception of it should be preferred. Ultimately, I claim that all attempts to define what makes something "physical" are inadequate, and the best working definition is that it is whatever the physicist postulates in their ontology.

1.1 What is the Physical?

Defining what is "physical"[22] is notoriously difficult to pin down. As a doctrine, the formulation of what "physicalism" means is correspondingly elusive. There are, I think (broadly speaking) five main routes one could take to describe what we mean by the ontological nature of *the physical*.

Physicalism would be true if:[23]

1) Everything that exists is material (e.g. Hobbes' materialism). This is an ontological claim rather than a methodological claim wholly dependent on scientific practice.
2) Everything that exists is of the type of things to which the science of physics refers (e.g. Melnyk).
3) The physical is what is not-mental (e.g. Papineau). Or, fundamental mentality will not need to be postulated in the sciences (Brown & Ladyman).
4) Stoljar's (2001) account: physicalism can be defined in two ways (or a combination of the two). Namely, all properties that exist are either "theoretical-properties (t-properties)"

[22] In my discussions of the *physical* I ignore *abstract objects* such as numbers and propositions, said to be of a third type of (neutral?) existence, as hinted by Frege, Russell, and Quine. I believe that a genuine physicalism must excise any type of existence that is not physical but that is not important to the thesis.
[23] Whereby non-physical properties must bear a close metaphysical dependence on physical things, e.g. through supervenience or realisation physicalism. On the other hand, for the reductionist, absolutely all properties are physical.

or "object-properties (o-properties)." T-properties are the theoretical properties assigned by physicists which account for causes and effects and what can be observed. O-properties are what we group as physical based on prior intuition about objects, for example that chairs and stars are physical. This is logically distinct from t-properties because they do not necessarily need to be postulated or observed by the physicist.

5) Physicalism is not a metaphysical doctrine, but an attitude (e.g. Ney, and Van Frassen).

I believe that the first kind of definition is the most interesting and impressive, but it is liable to error from an idealisation that may not be captured by the mindset of the physicists. Furthermore, it is very difficult to decipher the essential characteristics of what makes something "physical" and there is hardly any agreement on the matter amongst philosophers or scientists alike.

The second kind of definition is a more practical and pragmatic definition but I argue that it does not capture the most important criteria of a Materialist Metaphysic. The third definition could focus either on the physical ontology being defined as "what does not permit a *fundamentally mental* type of existence" or on the other hand, it could be a prescription for how to epistemically decide what should be classed as physical or non-physical. I reject the third definition on the grounds that a) a minimal physicalism need not reject fundamental mentality per se (See Dorsey, 2010) and b) because whether something is a mind or not, does not have a necessary bearing on whether it is physical or not. Regarding the fifth definition, I argue that this does not capture the substance of physicalism, namely, it is not a research-framework at its most fundamental expression but instead it is a description of objects themselves. The fourth definition is to my mind the best, but it risks being quite vague. Anything can count as an "o-property" it seems.

Concerning the first definition, it is difficult to find a conception of the physical properties which all physical things necessarily have simply in virtue of being physical. At first glance, one might propose that "the physical" is essentially that which is extended in space and endures in time. However, it is plausible that before the Big Bang there was neither space nor time, yet Reality was still in an important sense physical if physicalism is true. In any case, we know that the universe contains spatial entities, and a physicalist would hold that all things exist *in* space (whether or not they are technically "extended"; black-hole centres may not be extended in space in the usual sense, but nevertheless exist at some location). Existing within

time is a more controversial "physical" property, for even a mental non-physical entity may be said to endure time in some sense.

How, then, should we characterise the ontological essence of physicality? We might begin by giving attention to what we would intuitively take an object to be if it *were non-physical*. Our best candidate is the mind, as its understood nature seems to be at odds with our usual conception of physical objects. It is common to think of the mind's attributes as being different from that of physical objects, to the extent that one supposes that the mind is not even spatial to begin with (e.g. Descartes and Leibniz). However, it does not seem inherently incoherent to suppose that the mind or its properties are located in space, even if that object of the mind is non-physical due to its possession of non-physical properties.

Switching from our conception of ontological properties to general concepts, we might think that the property of mind *"phenomenal awareness"* is non-physical in nature. The question follows: is such an *awareness* something non-physical? NRP who believe in the ontological realisation relation, suppose that awareness is a higher-order property of something physical, which may not itself be physical according to NRP (Tiehen, 2015, p. 2407). In rejecting higher-order properties, I argue that phenomenal awareness is itself a 'mode' of a physical object, namely a brain (or brain states).[24] Whether that *mode* is *physical* becomes a fruitless semantic issue, given that we have no adequate way to define it metaphysically. And given that the common method is to define it as "whatever the physicist postulates" then it would not be physical. But if it is an o-property in Stolar's sense, then even if the physicist cannot observe it, it could still be physical.

This conception of a "mode" of an object would be one where there is allowed the strict identity of two property instances insofar as their and objects are numerically identical but with different expressions of them.[25] For example, consider how in Spinoza's (1677) theory a conscious person is a mode of God, but that same mode is expressed differently in two ways, one as material, the other as mental. But unlike Spinoza, I take it that the physical properties have a monopoly on power. After all, there is the causal closure of the physical. As such, one is

[24] In other words, all the things that exist in Nature are either a fundamental physical entities, or else a different modification of those entities. I use the word "modification" in order to highlight that it does not involve higher-order properties or *powers* (See Heil's usage, 2003), contra non-reductive (emergent) properties.

[25] Under Kimian events, this mode would be a distinct event which supervenes on the physical mode. Under Davidsonian events, it is one event with distinct modes: a region of space-time which has a physical mode and a phenomenal mode.

able to maintain the causal powers of the fundamental physics to be all that there are and also allowing for the explanations of the behaviours of minds to be the same as that of brains (for in reality they refer to the same object).

1.2 "Physicalism" as Depending on Physics

Melnyk champions the physicalist ontology in virtue of what our current physics takes to be the properties that best describe the fundamental nature of the universe. Many philosophers nowadays (most notably Melnyk 2003 and Shoemaker 2007) prefer to characterise physicalism in terms of realisation. Melnyk describes physicalism as the thesis that all entities are either fundamental physical particles or else they are *realised* by physical particles, the latter relation of realisation focusing on functional properties. Though Melnyk intends to ignore closer scrutiny into the metaphysics of properties (Melnyk, 2003, pp. 9-10), in this thesis I propose that such a focus on realisation and functionality in accounting for Physicality is misguided.

It is interesting that most physicalists subscribe to the second definition of physicalism as though physics has the only and final say on the ontology of objects, when in fact they often propose metaphysical concepts beyond what is empirically evidenced to exist: higher-order properties and a non-reductive relationship to the base level of things. Physics need not mention anything such as "supervenience" or "realisation" and for that reason I agree with Crane & Mellor that it is a wonder why they are even called physicalist theories (Crane & Mellor, 1990, p. 86). Nevertheless, such views are widely considered to be legitimately termed "Physicalism" for the reason that they revere physics as the science which describes the most fundamental type of existence. I take such views of physicalism to be "minimalist," against the more "robust" version of physicalism I propose whereby there are no entities that are not *themselves* material.

How does this kind of physicalism relate to physics? Melnyk admits that "physicalism" may be overthrown soon if physics makes a drastic turn, i.e. if what it postulates to be *fundamental* is something entirely different from what current physicists take to be physical, but that it will nevertheless maintain "the spirit of physicalism" (Melnyk, 2003, p.15). This would mean that "physicalism" is to be dependent on the framework our contemporary physicists adopt.

As such, Melnyk's emphasis is that what we define as "physical" depends on the concepts employed by scientists (of our time), rather than it being some metaphysical feature of reality that is fundamental and distinct enough to be known without discovering what are the

particular mechanisms of the universe (which is the job of the natural sciences). It is not so much the concern of the scientist to discern what we mean by "physical" but it seems as though their *subject-matter is* the kind of existence naturalistic metaphysicians call "physical." Such a view would be vulnerable to Hempel's dilemma (more on this below), namely the horn that physics may change drastically in the future, with content not like the present day. Nevertheless, this may be a feature, not a bug, because it *should be* an a posteriori theory, not a priori. It is open to revision.

1.3 Physicalism as Depending on Metaphysical Concepts Rather Than Scientific concepts

While I generally agree with modus operandi of referring back to physics when examining the nature of actual material things, I disagree with Melnyk's idea of what we take to be "physical" as he promotes the idea that the nature of its existence to be identified by the discoveries of present-day scientists and their frameworks. This order of understanding is certainly congenial to the scientists' endeavour, but surely physics sets out to describe what we already take to be "the (material) realm of what exists" and attempts to decipher the nature of its constituents. If so, should we not give a basic account of what this reality is like at its most fundamental (even if informed by empirical/scientific concepts to some extent), and then claim that the scientists are working to understand the way it exists? This would be so, rather than, for example, expecting physics to explain our intuitive conception of what is not its concern, e.g. phenomenal experiences.

The picture might be more like the following. We have a pre-scientific understanding of what the physical is, such that in history before the advent of physics, there was thought to be an ontological division in nature between what is understood as the nature of the world "out there" which does not depend on minds for its essence, and that we have an "internal subjective" realm which does not easily coalesce with that conception of matter. It may be helpful to conceive of what we mean by the physical by conferring with our conception of mind as a potential contrast to that which is physical (or, alternatively, one may think of "spirit" as juxtaposed with "body"), thus avoiding the contingency of science for our conception of what is the basic sense of "physical," but that this is only a spurious beginning to deciding whether the Mind is not within the realm of the physical anyway. This would be akin to something like Stoljar's o-properties conception of the physical, but it starts to look like the not-mind definition of physicality

In contrast with Melnyk's conditions for physicality based on contemporary physics, I would rather focus on a comment he passes over about Thomas Hobbes (Melnyk, 2003, p.14). Melnyk says that he is not attempting to provide a conceptual analysis of the physical (Melnyk, 2003, p.15) itself as opposed to its reference to current physics, but if we *were* to do so, what might that look like, and is it worthwhile to formulate such a conception? Melnyk admits that according to his outlook on physicalism and its connection to current physics, there is the "unsettling consequence" that Hobbes wasn't a physicalist. Since, back in his day, there wasn't an understanding of physics anything like ours today. They did not know that light was an electro-magnetic wave, that space-time is a relativistic four-dimensional entity with vacuum energy, etc. But even if Hobbes' day and age, he was surely a materialist.

What Hobbes got right about metaphysics is that all that exists is "material." The word "material" may seem outdated and anachronistic as applying to the way we conceive of reality today in physics, especially because there are existences such as light, gravitational waves, and space that do not seem material but are still importantly *physical*. Our scientific terms may have become more sensitive and precise about the nature of what is physical, but I contend that Hobbes was nevertheless no less correct in his Metaphysics as we are now, or indeed even in any future. This is because it is not so much about the trifles of what are the exact properties assigned by a current-day physics, but rather the general truth that there are common ontological qualities of all things that exist.

Most philosophers (e.g. Hempel, Jackson. See Melnyk, 2003, pp. 12-13) agree that there should be scepticism about the likelihood of today's physics being an accurate account of the most fundamental basis of reality in the future physics. They may be right, but I do not think it unreasonable to assume that despite a large shift in the framework of physics it would nevertheless still be materialism in the sense that Hobbes envisaged. What I am proposing, then, is a definition of physicalism whereby it refers to the fact that Existence is fundamentally constituted by material or physical beings, rather than being whatever our present-day physics takes it to be. These types of entities will exist in space-time and follow the conservation laws of energy, follow a model of particles, etc.[26] If enough of this were upturned, for example entelechies and spirits were required in physics, then indeed physicalism would thereby be

[26] I do not take this brief tentative description of the necessary or sufficient properties of the physical to be satisfactory, but stress only that there is some attribute of reality to which our concept of "material" refers, rather than us defining physicality in a formulation that is vulnerable to the absolute capriciousness of Scientific understanding.

disproven. Most importantly, what is material is that which is observable by *third-person* observations in some way or another (plus the use of inference and mathematics based on such observations). This is akin to something like Stoljar's t-properties conception of the physical.

1.4 Defining "Physical" as "Not-Mind"

Stoljar (2024, Section 4.5) notes that this strategy is also called the "via-negativa" strategy (e.g. Montero & Papineau 2005, Wilson 2006, Fiorese 2016). How should this definition of "physical" relate to the "mental"? One way would be to state that a property P is physical *if and only if* it is not mental. However, as Stoljar informs us, the out-dated theory of "vitalism" postulated a kind of force which was not physical, but it was not mental either. Therefore the via-negativa strategy wrongly allows a non-physical property, the vital force, to count as physical. Next, Stoljar suggests that perhaps the doctrine should be: a property is physical *only if* it is not mental. Again, this proposal does not rule out the non-physical property of the vital force, for it is not a physical nor mental property.

A further problem mentioned by Stoljar is that such a proposal would not sit well with an identity-theory of mind. He asks us to consider C-fibre firing. On an identity-theory of mind, this event will be both physical and mental. But if it is mental, then the via-negativa definition will rule it out from being physical, which is absurd. What if, instead, suggests Stoljar, the definition only applies to fundamental beings: if they are mental then they cannot be physical. Since C-fibre firings are not a fundamental kind of entity, it will be safe. Stoljar concludes that even if it seems farfetched, fundamental atoms could have mental properties, but a theory should not rule it out simply via definition.

What should we make of these considerations? I agree with Stoljar's assessment. After all, Dorsey (2011) provides a convincing argument to the effect that Panpsychism is consistent with at least a weak form of physicalism. Furthermore, Strawson (2006) argues for the much stronger claim that physicalism *entails* Panpsychism.

Dorsey argues that a minimal physicalism need not exclude panpsychism by definition. This is because the "no-fundamental mentality" (2011, p. 210) is an intuition about physicalism which has no justification. Dorsey references Wilson (ibid, pp. 209-210) as asking why it should be that, since physicalism allows that there are *some* conscious beings, why should it exclude not *all* beings can be conscious? The idea that only complexly configured entities can have consciousness does not seem to be a necessary constraint of physicalism. The real problem,

Dorsey argues, lies in the definition of "fundamental mentality." There are two senses of the term:

1. "Fundamental Mentality (1): Mentality *that is* fundamental…
2. Fundamental Mentality (2): Mentality *that is instantiated by* a fundamental physical entity…" (ibid, p. 216).

Dorsey countenances that (1) is incompatible with physicalism since that is supposed to be an anti-dualist doctrine. That is, physicalism requires that mental properties or entities at the very least supervene (or are realised, identical, etc.) on physical objects/substances. Whereas (1) has it that mentality can exist as distinct from physical objects. Principle (2) however merely states that fundamentally physical objects have mentality, not that the mentality itself is fundamental. And this is perfectly consistent with the physicalist assertion that all mental properties must ontologically depend on something physical.

I am convinced with Dorsey's reasoning that panpsychism is at least logically consistent with a minimum form of physicalism. Strawson (2006) makes a stronger claim that physicalism *requires* Panpsychism. How could this be so? It hinges on the problem of "radical emergence." That is, how could it be that non-conscious properties or objects come together and suddenly form a completely new and unique kind of conscious being? Strawson's intuition is that it must be because consciousness (in some form or another) was already present in the parts all along. Such an argument is not too convincing, and it suffers from a different problem of how it is that distinct conscious objects can come together to form one new unified conscious being. Nevertheless, again, I believe Strawson's argument is logically consistent. Dual-aspect monism has often been thought to imply panpsychism, and in the last chapter where I offer my theory, it employs the framework of the "aspect" relation, but without committing to panpsychism.

It would appear, then, that the idea that the physical is that which does not posit fundamental mentality is a failure. Stoljar (2024) asks of the via-negativa, is there anything correct from the intuition that belies this definition? He writes: "when we think of properties that would falsify physicalism we do often think of *certain* mental properties, e.g., the distinctive properties of ectoplasm or ESP" (2024, Section 4.5). But, he contends, this could be done by providing a theory of physicalism that allows such uninstantiated properties to count as non-physical, but to not rule out mental properties as being physical *by definition*. This is an important insight. With the difficulties in trying to define physicalism, one of the more intuitive

ways to get to the heart of it is, in my opinion, that it is the rejection of things like immaterial minds, ghosts, supernatural powers, etc.

Why must a theory of physicalism reject immaterial minds but allow non-physical mental properties, as indeed the NRP posit the latter? The reason is because such higher-order properties are so closely tied to the physical base that they are naturalised; this is done through the relation of supervenience at the minimum. What supervenience does is stipulate that the constitution and powers (for the most part)[27] of the mental properties are fully determined by the physical base.

Latham (2003) discusses token physicalism and argues that for an event to be physical, all its intrinsic properties must be physical. Whereas if even one intrinsic property is not physical, then the whole event does not count as physical (ibid, p. 218). Supervenient non-physical properties would be fine because they are not "intrinsic" to the event presumably. Latham uses the idea of an "immaterial mind" as a limiting case for defining if an event is physical. For example, if some conception of a "physical" event allowed any influence from an immaterial mind then it would not count as physical. Furthermore (ibid, pp. 283-284), even if an immaterial mind were present in an event but not interacting with anything physical, even if it were "soaking up information" in a purely mental manner, this would still render the event non-physical. I believe this kind of idea is on the right track.

1.5 Physicalism as an Attitude

I have covered three perspectives on how to define the physical. The first was an ontological doctrine which attempts to define the "physical" by outlining the essential characteristics of physical things positively. The third definition was also an ontological doctrine based on what the essential nature of the "physical" *is not*, namely it is not mental. The second definition based its ontology on the practices of science. If one does not find any of these definitions satisfying, there is the proposal that physicalism should be understood as an attitude rather than a set of metaphysical commitments.

Ladyman & Brown quote Van Frassen: "[materialism] is not identifiable with a theory about what there is but only with an attitude or cluster of attitudes" (Ladyman & Brown, 2009, p. 24). Ney (2008) also argues that physicalism is best understood as an attitude or oath rather

[27] Arguably, emergentism is compatible with supervenience. That is not compatible with physicalism. I discuss this issue in Chapter 4.

than a set of ontological claims. The oath would be: "(PC) I hereby swear to believe in the existence of all and only those entities posited by current physics and those" (ibid, p. 11). Ney's exposition attempts to overcome both horns of "Hempel's Dilemma" (coined by Stoljar). This dilemma poses that an understanding of physicalism based on the discipline of physics as a study, will suffer either of the following two issues:

1. Physicalism is committed to current-day physics. But it is very likely that in the future our current physics will change, even drastically. Many revolutions have happened in the past. It would be naïve to assume such changes won't happen again in the future.
2. Physicalism is committed to whatever the future "ideal" physics is. But since a drastic change could happen, it might even invoke immaterial substances one day. If one is leaving this possibility open, physics could end up being anything. Therefore it is an empty or trivial supposition.

Ney argues that her view sidesteps both horns because her position is not committed to a "doctrine" so therefore it cannot be false or trivial (ibid, p. 10). Second, it is sensitive to current-day physics, so it has an advantage over the via-negativa account. What should we make of Ney's solution? I believe it to not have solved the issue but merely moved the goal posts. It does not seem to fair better than the physics-based definition of physicalism. That is, it is either naïve in having faith in current day physics and secondly, it does not rule out the fact that there could be drastic changes in future physics whereby it postulates immaterial minds. Ney says her view does overcome this problem because if in 3000AD the dualists are shown to be right in requiring immaterial minds to explain reality, the physicalist attitude would be shown to be inferior because it should've reached that conclusion long ago. Still, this leaves the theory without much actual content; it is not falsifiable.

1.6 The Inadequacy of Physics for Physicalism

Physics, in being an objective science, is limited by the method of only accepting and admitting that which is publicly observable. This is for good reason, because such routes to truth such as "introspection" cannot provide anything more than tentative speculations, as evidenced by Psychology before the advent of cognitive science which employed neuroscience for a more objective analysis. However, though public evidence is indeed much more rigorous and

tractable within mathematics than the dubiousness by which we can accurately depict our own psychological states, we cannot deny the *reality* of subjective states.

It would seem that qualia is beyond the pale of physics precisely because they do not fit within the scheme of publicly observable evidence. They can only be known by the organism that has it, and indeed this leads to certain puzzles about how it is that qualia relate to the rest of what physics demonstrates, given its intrinsically subjective essence. It would be parochial to suggest that *because physics* cannot capture some phenomenon under its terms, that it should be eliminated as being unreal. Something can be physical and real even if the methodology of physics is incompatible with grasping it, such as Stoljar's o-properties, or the qualitative side of physical properties. Farrell (1950) clearly laid out the problem of to what extent science is unable to identify phenomenal properties, but I shall cover the more famous outline by Jackson.

Jackson (1982) came up with the *Mary's Room* argument in order to convey the explanatory gap between physical and phenomenal properties. Mary lives her whole life only experiencing black and white. She has read every book and seen every documentary about *all* the physical information (in some hypothetical ideal) behind the colour red. When she leaves the colourless room, she sees a red rose for the first time. She learns what the colour red *looks like*. The argument goes: if she had all the physical information but learned something new afterwards, then that new information couldn't be physical, because she would've already known it.

This does not follow. Because after all, it could be that some physical information is not accessible in textbooks or from the wrong wave-lengths of light (e.g. from a grey tv screen). It could be physical information that you can only attain by instantiating the right kind of brain states, but that is still physical. In other words, the property instance of looking red to her, could be an o-property, but not a t-property (Stoljar, 2001, p. 264). What I take the Mary's Room argument to show is not that qualia are not physical, for that depends on what "physical" means. It teaches us only that some information can only be accessed by having the right sort of interaction happen to one's brain, e.g. by the optic nerve. The real conundrum is *that* some brain states also are phenomenal experiences, and why or how they arise.

Furthermore, the natural sciences are incomplete, so they cannot have a monopoly on all physical predicates (Moser & Trout, 1995, p.2). Nevertheless, this is not to undermine the gravity of deferring to physics to be informed about what is physical and in what way; the point

is, there are some things, especially qualia, that would require interpretation beyond what science can offer. Given that “physical” seems to be a family resemblance concept rather than something that can be properly defined, I shall go tentatively with the following definition:

Physicalism: the theory that physicists have a special privilege in providing an ontological catalogue of what exists. Fundamental mental properties (such as phenomenality and intentionality) will not need to be invoked in order to explain the nature of reality.

1.7 Physical and Non-Physical Properties

Here it will do us well to discuss the deeper meaning of what it means for something to be physical (assuming we have correctly identified it to be so). Physics takes the world to be ultimately made of energy in various forms, whereby all interactions conserve the amount of energy in the universe. This applies not just to the objects of which we can observe directly, but also to hypothetical entities such as dark matter or dark energy. Nonetheless, we posit the existence of unobservable matter because it follows the physicist's framework of what it takes for something to exist, i.e. it affects reality in some way that relates to mass-energy, that it has some influence relating to gravity or the stress-energy tensor, etc. The question, then, is whether an entity that conforms to this physical requirement of consisting in energy could nevertheless have non-physical properties.

We are brought again to the problem of what makes something non-physical. This frustration with pinpointing what is of the essence of physical and non-physical properties provides a basis for the kind of argument I wish to espouse, that it is hopeless to have a perfect definition of the physical. Namely, it is to say that we simply do not know enough about the mind or the *non-physical* (the latter being often intuitively grasped as the nature of mind-properties, by NRP for example) in order to be able to claim that there are non-physical properties that exist in reality. If the only candidate for a non-physical existence distinct from the conception of matter (which we are certain exists) is the mind, then we have no basis for saying something has non-physical properties just because it has an awareness, for example.

At this point, one may wish to make the usual counterarguments against the Identity Theory that it commits a category error for identifying two different kinds of existences into one. This is the suggestion that the mind is a non-physical object which does not have the physical quality of mass (or size, charge, etc.) whilst the brain, which is supposedly the very same object, does have mass (Smart, 1959, p. 151). How could the same event both lack and possess such a

quality? The answer is that the mind just is the brain under a different conceptual role. At that level of explanation, it doesn't make sense to speak about mass. There is not a second massless object called "mind."

For now, we may satisfy ourselves with the following working-definition of physicalism that would be accepted by the reductionists and non-reductionists alike: that there are fundamental physical entities that follow the laws of physics and that all of reality must not break those laws. The reductionist would propose that there is only one set of laws (regarding powers): those that govern the fundamental physical entities. As such, since everything that exists is identical to fundamental physical particles and their properties, all laws are subsumed within the bottom level (and only order) of reality, within physics. The non-reductionist (such as Putnam 1980 or Fodor 1974), on the other hand, would contend that there is the set of laws within physics, but that higher orders of reality, for example Psychology, abide by autonomous laws of causation that are nevertheless consistent at bottom with physics.

I question why it is that the mind should be conceived of having powers that are not captured by physics. Once we have rendered Mind itself causally impotent and subsume it within the real physical powers in the atoms, the argument for higher-order entities fails because they are causally otiose. I am arguing the following. What reason do we have for postulating the ontological separation of what are the physical properties of the brain with non-physical mental properties? The main reason would be that mental phenomena have some sort of power separate from the realm of the physical. On the other hand, if the causal powers of the mind were exactly identical with the brain, then there would be no good grounds for arguing that the mind is anything but epiphenomenal (or type-identity, eliminativism, etc.), as its laws are subsumed within the laws of physics. Furthermore, if the reductionist is successful in proving that the mind's existence (insofar as it is considered on its own as a potent property, whether physically emergent or realised) makes no difference to the causal series of reality, then the mental states should be declared to be on the order of atoms in terms of existence.

1.8 Causation in physicalism

With an ontological worldview such as physicalism or Dualism comes the account given for how causation occurs. In Dualism, there is the postulation of mentally subsistent objects or properties (not dependent for their existence on something physical except by happenstance, if at all) that cause changes in either physical or mental constituents of events. Within

physicalism, the account of what sort of causation can or does occur is disputed. Some non-reductionists believe that non-physical properties can have some causal influence, whilst reductionists would deny this because only the physical bottom level exists and can exhibit causal influence.

However, there are clarificatory problems with the taxonomy of physicalist theories in relation to causation. For example, some would argue that the CCP in conjunction with supervenience is enough to suffice for a formulation of physicalism, whereas Kim believes the Supervenience Thesis alone is sufficient. Against the latter, philosophers have argued that emergentism is not a physicalist theory yet can nevertheless be consistent with supervenience. Kim denies this possibility, but Beckermann (1997) provides good reason to suppose that an emergentist theory defined in a certain plausible way can in fact be dependent on supervenience without warranting a status of physicalism. After all, genuine emergence would have entities not identical to physical tokens, with genuinely novel powers of causation that extend beyond, rather than being compatible with the laws of physics. If this is so, then the problem of causation in physicalism will depend on something more than mere supervenience in order to guarantee that it is indeed consistent with physicalism.

Moreover, when considering how supervenient phenomena figure within causal chains, Brown & Ladyman (2009) discuss Schaffer's argument that if there is no fundamental base level, i.e. no ontological ground floor upon which all other properties depend, then causation becomes level-neutral. Every level has the same causal status, and higher-level properties are no less real or efficacious than lower-level ones. Schaffer's point is not that all properties literally have equal powers, but that in the absence of a fundamental level, the *hierarchical structure* assumed by standard reductionism collapses, and there is no privileged base to which causal authority can be assigned. Brown & Ladyman dispute this conclusion. They argue that the very structure of supervenience relations generates micro–macro causal competition: higher-level properties depend on lower-level ones in ways that jeopardize their causal autonomy, so one cannot simply declare all levels causally symmetric. As they put it, the supervenience hierarchy itself creates pressure toward a bottom-level locus of causal determination (Brown & Ladyman, 2009, p. 31).

I agree with Brown & Ladyman's diagnosis of the micro–macro tension, but I reject their own hierarchical ordering in which the "fundamental" level comes first, the physical level comes next, and the mental is placed third (Brown & Ladyman, 2009, p. 37). On my view, this

stratification misdescribes the metaphysical landscape. I believe, instead, that the physical properties are not a level above the fundamental but *are* the fundamental sparse powers, and mental properties are categorical modes of those same physical states. Thus, whereas Brown & Ladyman preserve a three-level ontology, my framework collapses the first two into a single physical base and reconceives the mental as aspectual rather than level-based.

Regarding whether Reductionism would be false if there were no fundamental bottom level, that the more fundamental and the deeper you probe, e.g. quarks become strings, strings become mathematical points, ad infinitum. I shall not argue against this suggestion explicitly, as it is merely a possibility and cannot be disproven. However, I agree with Benovsky (2015) that the issue is moot. Even if one is a reductionist or eliminativist, all that matters is that *there is* some base fundamental physical level, regardless of what that may be and whether or not we know it yet. If the series goes on infinitely, ever more tiny and fundamental, then we may just call that *set* of properties "atomic" for all intents and purposes.

Much of the argument for Reductionism comes not just from concerns about parsimony, as will be discussed later on, but also from the evidence gathered about causation when understood from a naturalistic standpoint. Much of this amassed evidence to use in our Metaphysical theories comes from considerations about how causation occurs in relation to physical laws. I argue that if the Causal Closure of the Physical Principle (CCP) provides us with compelling reason to accept a reductionist account of all causation, due to the theory's plausibility, coherence, and simplicity. I discuss the reductive solution to the CCP in the later sections. The metaphysics of sparse and abundant properties and the nature of "explanatory power" will also determine much of the ontology of causation, which I shall discuss in the next chapter.

1.9 Sparse Properties

Since I am putting forward a parsimonious naturalistic metaphysics, I will give priority to sparse properties, understood as the fundamental properties having most prominence. Schaffer (2004) distinguishes between two ways of conceiving sparse properties, the *scientific* and the *fundamental* conceptions. On the scientific conception, sparse properties are drawn from all the levels of nature, including macro-scientific kinds such as neurons, protons, and desires, since these feature in scientific explanations and underpin causal powers. On the fundamental conception, by contrast, only the properties invoked in fundamental physics count as sparse.

Schaffer argues for the scientific conception, claiming that it better fulfils the traditional roles of sparse properties: grounding objective similarity, causation, and the ontological structure of the world. He rejects the "minimality" requirement that motivates the fundamental view, replacing it with a "primacy" condition according to which sparse properties need only serve as the ontological basis for truth. This allows macro-properties to be counted as ontologically primary, making the picture of reality egalitarian across the sciences.

By contrast, I endorse the *fundamental conception*. The notion of sparseness is valuable precisely because it identifies the *minimal* set of properties that form the explanatory and causal bedrock of nature. To drop the minimality condition, as Schaffer proposes, is to blur the distinction between what is *ontologically basic* and what is merely *scientifically useful*. Higher-level properties may possess real causal powers and explanatory significance, but these powers are realised through, and wholly fixed by, the underlying micro-structure. Only the fundamental properties ensure causal and explanatory closure; they alone serve as the ultimate truth-makers for all higher-level facts. Thus, while Schaffer's pluralism captures the autonomy of the sciences, it comes at the cost of losing metaphysical economy. The fundamental conception retains that discipline by grounding every level of reality in a single, unified base.

Moreover, the appeal to a fundamental base reflects not mere metaphysical prejudice but the very logic of scientific explanation. Every successful case of inter-level understanding, from chemistry's reduction to atomic theory, to thermodynamics' grounding in statistical mechanics, seems to reveal that higher-level regularities obtain in virtue of lower-level configurations. To call both levels equally sparse is to obscure this direction of dependence. The explanatory asymmetry between levels suggests that reality is hierarchically structured, with the fundamental level fixing all others. Even if we grant that the world might be infinitely complex, that possibility does not undermine the intelligibility of fundamentality as a *regulative ideal*: without the assumption of a lowest level, explanation would be indefinitely deferred. The fundamental conception preserves both ontological economy and explanatory completeness, locating sparseness where causal determination and explanatory closure ultimately converge.

I take it that the problem with Schaffer's view is that it includes too much. Though he is correct that, for example a proton is not truly fundamental because it is composed of quarks. This does not mean that it is not congenial to sparse properties. It is a micro-based property after all, a mere conjunction of sparse properties. Therefore to refer to protons still "carve

nature" at the joints, whereas a much more higher-level property like botanical taxonomy will be much more vulnerable to accidental qualities.

1.10 Concluding Remarks

I have discussed various views on how to define physicalism and the physical. I believe that each of them on their own are not satisfactory. What is required? I propose a mixture of these positions but with the underlying concern that a perfect definition is impossible and will depend on many different intuitions one has and stresses. One definition cannot be "better" than another here in that regard, since it depends on how much weight one wishes to give on which intuition. Nevertheless I offer the theory of physicalism to be that everything that exists must at least supervene (or inhere etc.) in something physical. The "physical" is that which we take to be obviously physical such as chairs and planets (Stoljar's o-properties), does not depend on minds to exist, can be observed, and for the most part is informed by what physics tells us. This seems like biting the first horn of Hempel's Dilemma, if I rely on current-Physics, what if in the future it changes. Thus I add the stipulation that if in the future immaterial substances are postulated, physicalism will have thereby been refuted.

Chapter 2 : Causation of the Physical

2.0 The Causal Closure of the Physical (CCP)

Physicalism is quite a substantial thesis, with implications that are very far reaching. One of the great concerns for this thesis is how this Ontological doctrine shapes our notion of causation. To put it simply, if physicalism is true, then all causation is due to physical powers. For this chapter I will treat "cause" as general and neutral as something like x at t1 causes y at t2 if some ontological feature x was relevant for producing some ontological feature of y's nature. In the last section of this chapter I provide a more detailed analysis of what I take "real" causes to be.

The principle of the CCP is argued to be an empirical hypothesis which bears evidence for accepting the physicalist world-view. In short, it is assumed that it can be proven a posteriori that:

A) *CCP:* Every physical event is fully determined by prior physical events alone, at all moments in time (ignoring, for simplicity, whether effects are probabilistic under quantum physics. If one prefers, they may re-read "determined" as "fixing the probabilities of_").

If the CCP as formulated here is true, then this would provide good grounds for physicalism. After all, why postulate the existence of an extraneous non-physical thing to a causal chain already fully accounted for by the Physical? This non-physical existence is either causally impotent and therefore ad hoc (I discuss Epiphenomenalism in more depth later), or if it does have powers, it has already been accounted for by the physical ontology so its postulation would add a contradiction to the set of causal events assumed to be complete within physicalism.

The problem that a physically causally closed system of Nature seems to generate is how to reconcile the mind's causal efficacy with that of the all-embracing sufficient physical causations. That is, if only the physical exists and provides the powers for causing states of affairs, and the mind is not itself physical, then what should we make of the mind's potential to affect our bodily behaviour?

What we have very good reason to believe through explanations of behaviour and the awareness of our actions and states through introspection is that the mind acts as a cause in

some cases. For example, nobody could possibly deny that your *belief* that it is raining (seemingly) prompts you to carry an umbrella, whatever that belief metaphysically consists in or even if it is a true natural predicate. Thus, we must hold the very obvious proposition to be true:

Reality of minds (RoM): minds have an influence on the causal series of states of affairs.[28]

Such a claim is surely intuitive, and if it is denied, perhaps as Eliminativism or Epiphenomenalism might appear to suggest it should be, it is because their understanding of the term "mind" is of a more technical definition. I argue that at its most basic sense, the meaning of a "mind" (as mentioned in RoM) should not indicate anything ontological. Rather, the "mind" as generally understood is a term used to denote the means by which objects execute certain complex behaviours or that they are the bearers of phenomenal properties. Therefore, any Metaphysical theory could adopt that the "mind" is a real predicate of objects in Nature, by it merely indicating a certain complex functional organisation of the relevant kind. This entity of mind as here understood seems to be fully accounted for by third person objective properties of the kind that neuroscience and biology can discover through their objective empirical external evidence.

The dispute amongst different Metaphysical theories of minds is therefore not about RoM at all, but rather the more abstract problem of what is the referent of this phenomenon of mind and its relationship with the physical world. For example, even an epiphenomenalist can say "my belief it is raining influenced my decision to take an umbrella." But if you asked them to qualify that statement into a clear-cut metaphysics, they would say "my physical body did all of the causal work. A *belief* is just a word to describe those mechanical processes."

When I mention the word "mind", I usually consider its non-functional definition whereby it is that thing by which an object has phenomenal awareness or consciousness. In this thesis, I focus on the phenomenal properties, or qualia, in attempting to directly grasp what is considered the intractable properties of minds that are said to be difficult to naturalise or explain physically.

Let us consider, then, the aetiology of sensations. It is patent that we have an awareness of the world through conscious cognition, such that the sight of a more vibrantly coloured

[28] This is also one of the main premises of Davidson's argument for anomalous monism.

tomato influences our decision to buy it instead one that looks duller. But whether this influence of the sensation of colour was *causal* might be doubtful when considering how physical things exist and interact in this world.

For some, it is not enough simply to hold that RoM is true. What is important is the deeper question of whether there is something to the *essence of the mind* as itself, and not just purely the (lower-order) physical properties as having the only power. This being beyond the functional definition of the mind under RoM (which is neutral with respect to ontology). Therefore, if we wanted to be realists about the mind's ontology of power, we would believe that it is in some sense fundamentally distinct from the essence of physical properties or objects. We thus subscribe to the following:

Reality of Genuine Mental Causation (RGM): the nature or presence of mind-stuff, e.g. expressed in phenomenality as a non-reductive higher-order mental property, allows for effects in the series of events in Nature.

There are a few questions that the physicalist must answer regarding RoM. Those of significance include:

1) What is the physical existence of qualia at some moment in time? Is there a fully sufficient cause of the effect said to be caused by qualia?
2) Is there a fully sufficient cause of the effect where qualia was said to be causally relevant?
3) Does qualia have any influence on a causal series truly described only by the laws of physics being followed.

Regarding (3), I am alluding to the fact that an event P at time t1 to Q at t2 could be said to follow the laws of physics simply by adhering to general laws of the kind that "E = Mc2" or "energy is conserved in a closed system" even if Q followed P due to the power of laws of psychology as a separate force. I take it that Fodor argues that this is in fact true. However, I believe that the laws of physics in any particular event are so complete that it leaves no room for a separate force at any moment to derail what has been determined to be the path from physics alone.

Now, given RoM's *functional* definition, Epiphenomenalists do not need to scorch all sentences that speak of the mind and *what it does*, for in such cases they are in reality referring only to the person's brain states, as the essence of the mind itself as epiphenomena *does nothing*. (I discuss this in depth in the final chapter). This is because, for the Epiphenomenalist,

neural states play the causal functional role of "mind" understood in its most basic and non-presumptive definition. However, an Epiphenomenalist would deny the truth of RGM because it ascribes power to the phenomenal properties themselves, and we do not have evidence of this simply due to our introspective feelings that they are genuine causes (per Hume's scepticism about the causal force of our impressions, one after the other).

I use the term "genuinely mental" in RGM to denote an ontological type of being, autonomous and existentially distinct from the physical (though not necessarily lacking any dependence on physical phenomena). If RGM should be abandoned due to theoretical faults concerning its compatibility with CCP, we must incur the following problem. Do our experiences insofar as they are phenomenal[29] make no difference to proceeding states of affairs?

The appraisal of the CCP and RGM seems to bring us to a tension between our common-sense view of our conscious experiences being efficacious objects (or properties) in this world in their own right, and the fact that everything is physical and obeys the inanimate non-sentient laws of physics. That is, there appears to be two possible series of events, one in which there are only physical happenings with no room for extraneous mental causes, and in the second, we have mental causes amongst a series of physical causes whereby it makes a difference to that series. NRP often invoke the "causal inheritance principle" which I discuss later. I will argue that it is equivalent to epiphenomenalism.

This alone may not seem to be a problem for the reason that we have not yet established whether phenomenal properties are physical to begin with. For example, if phenomenal properties are physically emergent macroscopic properties, then we may supposedly be able to cohere the phenomenal with the physical causation in a way that saves it as a distinct force from the micro-constituents. Later, I argue that this "macroscopic move" fails. There is the issue of whether or not the CCP concerns a fundamental physical ontology of atoms being the whole story for causation, for then, if something were to be real and have any causal efficacy, it would be only through a reductive identity with those atoms. Even if not, and one suggested that special-science laws allow for distinct avenues for causation, this too will fail, as I argue later. In other words, it is not *in virtue of qualia* that makes a difference to reality and RGM would be false.

[29] I speak about phenomenality specifically because other aspects of the mind, e.g. beliefs, are quite feasibly captured by physical predicates concerning nervous systems and their dispositional behaviours.

In a sense, this would provide only an honorary causation to the mental, whereby the mental does technically lead to the next state of affairs, but it is only *through its atomic constitution (and that power)*. Even a NRP who believes that qualia are not reducible to their physical bases due to their macroscopic emergence has not yet escaped the grip of the claim that their minds follow the laws of physics rather than proprietary laws of the mental.

The conviction for RGM seems to be that, despite all biological, chemical, and physical descriptions the ideal scientist privy to every physical fact may have gathered about my body, he should not be able to determine how I will act because my mind's essence and powers are something other than the objects of his study, and those variables are supposedly relevant to my actions.[30] If the CCP is true, however, then the ideal scientist would indeed be able to determine my mental effects from my physical effects, without any reference to phenomenal properties. This is because knowing the full account of a man's brain would be enough to determine what will follow. No other forces, such as ectoplasm, are required.

On the other hand, one might argue that a complete picture of what exists might not be captured if one excludes phenomenal facts. That is, even if the CCP were true, then phenomenal properties may be physical themselves and therefore act as legitimate physical causes. Then arises the question, "why is it possible to determine that event P2 caused by P1, solely by observing the brain externally?" If the phenomenal is identical with the neural, then to understand the causal profile of the one would allow us to know (at least in this world) what states of affairs will follow.

Emergentists could argue against this picture that it begs the question empirically, and that it could be true that there are physical phenomenal properties but they provide causes to the exclusion of what the brain would do on its own. In other words, there is a downwards causation from the higher-order phenomenal property back down to the affairs concerning the brain. Thus, the scientist's knowledge of the brain would not suffice to determine what will follow, because he has not considered the power of the phenomenal property that is beyond his scope. This property of phenomenality might only be known to the intellect through a direct

[30] For the sake of the ontological argument we may ignore the statistical probabilities that would practically repudiate the possibility of determining any exact effect from preceding physical states of affairs, as in quantum mechanics. In any case, brains are "large" objects, so if the metaphysics of stochastic quantum mechanics are true, knowing the macroscopic states of affairs in a science does, with almost a 100% certainty allow one to determine what will occur given the preceding affairs (See Pereboom, 1995, p.28-29). This is because the statistical probabilities, when in accumulation to form large objects become averaged out such that the comprised object is stable and predictable.

experience of it as qualia. I will discuss this line of thought in the last chapter, when I provide a metaphysics of phenomenal properties. For now, I wish to cover Dualism and its relationship to the CCP.

Dualists quash the doctrine of CCP altogether, instead arguing that there are some causes which are accounted for by mental things rather than physical things. Alternatively, one may espouse a NRP answer to the problem such that the mind does follow the laws of physics, but that these laws are distinct from the microscopic[31] base level of physics. Here an elaboration is required for the important distinction between reductionism and non-reductionism in their understanding of Nature within physics.

2.1 Dualism and CCP

If the CCP principle is intended to provide support for physicalism, then Dualism will be its most emphatic opponent. Substance Dualism is the view that the mind is a distinct substance (it does not depend on anything physical and can conceivably exist outside of space-time) and has powers distinct from body. Indeed, this is how Descartes envisaged it. Property dualism is a weaker claim that all substances are physical, but some properties are not. Some NRP also speak like this, but I take it the main distinction is the relation, arguably the realisation relation, which makes the tie between mental property instance to physical base stronger than the ontological relationship proposed by property dualism.

Lowe (2000) provides a formidable defence of the possibility of emergentism (a form of property dualism) in his insightful analysis of the CCP. Consider a potential formulation of the CCP as (A) mentioned at the beginning of the chapter. As it stands, it seems to rule out Dualism's claim to have mental powers to interact with physical events *by definition* (notice it said the event is *fully* determined by physical events), because if all causation is solely physical then this leaves no place for the mind's independent power. Technically, however, even Substance Dualism is compatible with (A) CCP. This is because, so long as mental substances only interact with other mental substances and do not interfere with the causal chain of physical events, the CCP remains intact. Indeed, this would be a kind of parallelism.

On the other hand one could accept that all powers and causation are indeed solely physical, and adopt one of the two following (understood generally as undesirable)

[31] When I speak of "micro" as in "microscopic" or "micro-level" I mean that which concerns the most fundamental and smallest bits of reality, whether or not it is within our means to directly observe them.

metaphysical positions which deny the sui generis potence of the mind in actualising the next physical event. B1 or M1 at time t1, B2 or M2 at time t2.

1) Overdetermination of M1 & B1 to cause B2/M2.
2) Epiphenomenalism, whereby M1 is not identical to B1[32] (but supervenes on it), and has no power. Therefore B1 causes B2/M2 and M1 provided no power.

As Lowe notes, overdetermination is often dismissed automatically as too implausible to be considered (2000, p.3). I agree with this summation, it is pragmatically equivalent to epiphenomenalism but with extra bloat and redundancy. It introduces a superfluous entity and cause that is not needed, and makes for a strange situation of two competing causes for the same effect. Option 2 is usually barred in its traditional form as being able to be a feasible contender, as there does not seem to be a good enough reason to bring "nomological danglers" (Smart, p.142, 1959) into our ontology.

This is because, firstly, if we wish to maintain the seemingly obvious causal powers of the mind, Epiphenomenalism is already dubious. Second, if for good theoretical reasons we do decide that the mind does not have any powers, even in this world, then since Epiphenomenalism does not cohere well with physicalist ontology, it should therefore be rejected on that front. My position is more nuanced on this matter. Epiphenomenalism is just the idea that some property is inert, it is quite consistent with most other metaphysical theories.

For now, then, let us bypass these two allegedly unfavourable options and suppose that the Dualist is right about the mind being non-physical and potent. I believe (A) is better described as a goal that is eventually reached, rather than some principle which could be directly proved by empirical evidence. That is, we must draw empirical support from a logically weaker version of the CCP so that we may then infer and espouse the CCP in its strong form of (A). This then gives compelling evidence for the truth of physicalism. Suppose we want to provide some evidence regarding the success of physics in accounting for all causation, to the conclusion that physicalism is true. How would this look? Lowe (2000, p. 575) suggests the following:

B) *CCP*: Every physical event has a sufficient physical cause.

[32] In my unique exposition of Epiphenomenalism in **Chapter 6**, I forward a position which is a kind of identity-theory.

This is a statement which may reasonably be supported by empirical evidence, yet does not rule out dualism by default. However, as Lowe points out, the problem with this formulation is that it does not prove physicalism, for it is consistent with a Dualistic interpretation. Lowe describes a "sufficient cause" as a collection of events which jointly necessitate the effect (ibid). Consider the following scenario, where the numbers represent states of the world at different times:

1A) P50 -> P51

At T51, the event which is P51 has been accounted for solely by the physical event of P50. Lowe (2000, pp. 575-576) notes that the sufficiency of the physical here may be ruled out if the following is true:

1B) P49 -> M50 -> P51

This being the case, we have a physical event (P51) which has a sufficient physical cause within its history (P49), but this does not rule out any non-physical mental events (M50) from entering the causal picture in an important way. Such a view is not consistent with physicalism. Lowe suggest (2000, p. 576) that, the physicalist may respond by strengthening his account of the CCP by including within it the stipulation that:

C) *CCP*: At *every moment* in time a physical event (which has a cause) has a sufficient physical cause.

2.2 Lowe's Counter-Example

Lowe is not satisfied with the CCP as being defined as (C) either, for he argues that there is still a way for a non-physical mental event to crop up and induce an effect in the physical chain of events. This would be so if there is a sufficient physical cause which makes use of a mental component, illustrated by the following diagram (Lowe, 2000, pp. 576-577):

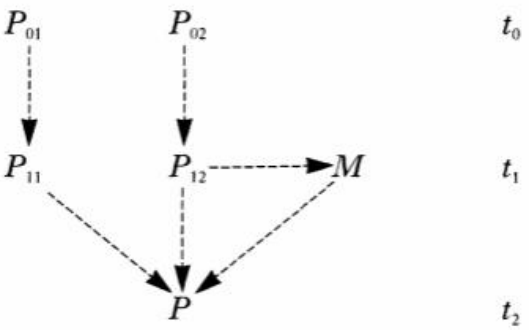

Fig. 1

From this picture, Lowe contends (2000, p. 577) that, consistent with CCP definition (C), the state of affairs represented by Fig. 1[33] provides us with a valid case of:

a) a sufficient physical cause of P (P11 & P12)
b) the reality of non-physical mental causation (M)
c) no overdetermination

If this scenario formulated by Lowe is possible, then we have a case where CCP is true but yet we have non-physical mental causes to events. This is a consequence the physicalist advocates of the CCP would want to avoid, for the CCP is supposed to provide evidence that there are *no* non-physical mental causes to events, for physicalism to then be established. A physicalist defending CCP definition (C) may be able to maintain its validity in providing evidence for the CCP by rejecting Lowe's description of Fig. 1. Premise (b) is uncontroversial, since we are trying to provide a possible case whereby M has some causal power relevant towards bringing about P whilst satisfying CCP definition (C). Lowe states that there is no overdetermination involved because P11 and P12 are *both* required together in order to cause P, and the same goes for M being only a part of the cause of P without itself being sufficient for it (Lowe, 2000, p. 577). However, I think there is in fact a problem with how Lowe describes his scenario, in particular with his claim that premise (a) is true of that scenario.

Before discussing whether (a) is true of the scenario, it is worth addressing some broader underlying metaphysical assumptions at play here. Lowe mentions that "the

[33] E.J. Lowe is here proposing the existence of a {physical and non-physical (components to an) event}. That is, if we expand our scope of what the token event is to consist in, which is somewhat arbitrary to begin with, then there is an event at T1 which is composed of physical and non-physical parts/properties.

physicalist may well want to deny the possibility of simultaneous causation, but it should be acknowledged that this is a further substantive claim…" (Lowe, 2000, p. 577). I shall accept the possibility of simultaneous causation. I take the partial causes of P11 and P12 to be spatially distinct events which are both required in conjunction to account for the essence of some event, P.

Lowe wishes to maintain that there was a sufficient physical cause of P in virtue of {P11 & P12}, together, being a sufficient cause of P. I do not agree with the possibility of this being true of an *actual* token event as I will discuss in the next section. If Lowe is incorrect that there could be a real event whereby it had a sufficient cause as {P11 & P12} yet required M in order to cause P, then I believe Lowe is mistaken in his argument.

2.3 Is there Really a Sufficient Cause?

Consider if this were a concrete case that had happened. Suppose, for example (with extreme simplification), that at time t0, P01 is a part of the brain, say the left half of the prefrontal cortex. P02 is a state of the right half of the prefrontal cortex. At T1, the next state of P01 becomes P11 which is still an inanimate state of matter. P12, on the other hand, has caused, within that moment of time,[34] a non-physical mental conscious state: M. At the next stage of T2 we are told that P was caused by P11 & P12 & M, but that {P11 & P12} provided a *sufficient physical cause* of P (Lowe, 2000, p. 577). When it comes to theorising about the general nature of causation, it might appear reasonable to say that a state of affairs[35] like {P11 & P12} would on its own be enough to cause something like P.

However, as with any metaphysical theorising we must apply it to this actual particular world as a test. If it is the case that for any token series of events, we cannot make sense of the "sufficient cause" as actually being sufficient in that case, then surely we have been mistaken in thinking that it was a sufficient cause. I believe this is true of the scenario given above, for are we not assuming that we needed M to cause state of affairs P? Indeed, that at time t1 it was imperative that M be there because P12 and P11 on their own were not enough. That is, the

[34] I am not sure if this is a real possibility in our world, for "causation" is always a process which requires a future state of affairs to culminate in order for the causation to be actualised. To speak of causation within a single moment of time seems incoherent. As such, physicalists would say M has a different metaphysical determination relation to P12 such as realisation, supervenience, reductive identity, etc.
[35] I say "state of affairs" to distinguish it from Kimian events whereby P11 would be a distinct event from P12 even though they occur at the same time.

prefrontal cortex alone was not enough to cause P but instead required a separate non-physical mental entity in order to have that power.

One might retort that M should not be considered as having any bearing on the "sufficiency" of the causes provided by {P11 & P12} because M is only an *intermediary* cause. In that case, Lowe is correct about the *logical* possibility that in Fig. 1 we have a case of (C) being true whilst also allowing that there may well be a mental entity involved. (C) is as much as we can say as an empirical hypothesis even though logically speaking it is vulnerable to the sorts of entities Lowe wishes to postulate.

However, I see this notion of "intermediary causes" in the way that Lowe envisages as a more of a trick. Indeed, it is logically possible that for any two events that we seem to have a sufficient explanation, there is always some intermediary beyond our knowledge. For example, imagine I can explain why rocks break windows. But suppose someone argues that every time a rock hits the window, there's always a little spirit that comes in and does the breaking, and it just looks like the rock made the impact. Such intermediary variables would always be unverifiable. You could always add another hidden intermediary cause between two events if you wished, but that is impractical and un-parsimonious.

In lieu of these considerations, a physicalist who wishes to defend the truth of the CCP as the fact that all events are fully determined by physical powers and nothing else, such that every physical event will have a *solely* physical sufficient cause (including intermediaries), must argue that (A) should be accepted despite any direct empirical proof for it. The problem for Lowe, I argue, is that to exclude M as an intermediary is impossible for an *empirical* inquiry such as science, for it is not the job of the scientist to exclude the existence of entities. But it is the job of a science to only describe phenomena in virtue of what is totally necessary, and as such, there is no room for M as a compelling postulate, even if it were an intermediary.

2.4 What Should the Causal Closure Principle be?

This discussion brings us to a normative consideration lurking in the background. Is the principle of (C): 'a sufficient physical cause for every physical event at every moment in time' a modest empirical hypothesis to be tested? This is how Lowe (2000) advocates it. Definition (A) on the other hand, is more of a declaration. I argue that in virtue of (C) and other considerations such as parsimony and the unification of theoretical inquiries, we infer that (A) is in fact true of our world. I believe that there are different reasons to accept physicalism other than what an

empirical understanding of the CCP could strictly offer. Metaphysical arguments are required in addition to what is found in experiments involving physical states of affairs in order to reach the correct ontological theory. Conversely, Lowe assumes that the CCP is an empirical hypothesis and attacks its inability to soundly prove what the physicalist wants to assert, i.e. definition (A).

There are two points to note. First, Lowe's argument may be distilled as arguing that there will always be an epistemic problem with knowing whether or not a mental event could sneak into a physical scenario or experiment. I accept this as being true, but this is to be expected by any physicalist position. In Lowe's example, there is no way to rule out the fact that between two times T1 and T2 where there was observed a sufficient physical[36] event, there could be a non-physical event at T1.5 in between those two moments. This is incompatible with the statement of (A) because at all moments in time there is only room for physical effects. However, Lowe proclaims that (A) is "too strong" because it inherently denies the possibility of overdetermination (Lowe, 2000, p. 574).

Logically speaking, (A) is indeed a substantial claim, but I take (A) to be a plausible theory given what else we know empirically about the world. Indeed, overdetermination should be a logical possibility, but it is ruled out for other reasons, then (A) becomes an attractive account of reality. Again, insofar as (A) is wished to be understood as an empirical hypothesis, it must be understood as something weaker and so the physicalist may be more lenient with its claim, e.g. as definition (C).

Definition (C), I take it, is true within the scientists' understanding. It provides evidence, through an inference to the best explanation, to the metaphysical doctrine of (A). Indeed, (C) is consistent with there being some non-physical intermediary to any physical event, but it would be impossible to rule this out due to the very nature of the mental and its inability to be directly observed. Lowe expects an unreasonably strict formulation of an empirical hypothesis which is supposed to absolutely prove physicalism. I agree that we cannot move from (C) to (A) through a logically valid inference, but that generally speaking (C) provides one good reason to believe

[36] Lowe says this "sufficient physical cause" may be known on "good empirical grounds" (Lowe, 2000, pp. 578-579). I am arguing that this is misleading given what Lowe himself wants to say (See Lowe 1981 where Lowe attacks the idea that scientists could observe psycho-physical identities). That is, Lowe seems to be arguing that we could never observe or have good empirical grounds for knowing that *any* physical event is sufficient, because we cannot shield from the error of failing to observe a non-physical event at play.

in the stronger ontological theory that (A) describes. Again, when Lowe provides his own stronger empirical hypothesis of the CCP as:

"(1H) Every physical event contains only other physical events in its transitive causal closure" (Lowe, 2000, p. 581).

Lowe has here provided a case which, if it is true, provides very good grounds to *adduce* (but not fully prove) CCP definition (A) as being true of this world. As it so happens, this is very likely the case with what scientists observe in our world, and given that we should not have the burden to postulate what *may* be the case, but for all intents and purposes given our observations, needn't be there, Lowe has not given us a reason to consider M as playing any role significant enough for us to concede its existence.

Second, if (A) is true in that strong form, not merely as some weaker empirical hypothesis (C), then Lowe has failed to provide us with a way that a non-physical event could still be consistent with (A), as Fig. 1 is ruled out.[37] This is because there cannot be a metaphysical way in which there are only sufficient physical causes for a particular event P *in every moment in time*, whilst also having some non-physical mental component play a causal role in the series of events. For any physical event P, if there *truly was* a sufficient physical cause (unlike in Fig. 1) then there would be no reason to postulate M at all.

What should we make of the (1H) proposition that is weaker in not mentioning *sufficient* physical causes? Lowe argues that this still leaves us with the possibility of a non-physical mental cause of a physical event in a way quite unlike what has been discussed so far. In this scenario, M1 does not cause P1, but instead M[38] causes *the fact* that {P1, P2… Pn} causes P. This fact/event distinction Lowe makes is supposed to overcome the notion that M is within the transitive causal chain, since M is not an immediate cause of any physical event (e.g. P2 or P3, etc.).

I think this manoeuvre is unsatisfactory for a few reasons. First, does this fact/event distinction do the requisite work or is it more of a semantic issue? Could it not be reworded that M causes the *event*s (plural) to be that way, even if indirectly, so it *is* part of the transitive causal chain? Furthermore, consider P1, this event at least surely seems to be directly caused by M.

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[37] Admitted by Lowe, but he argues that it would be begging the question.

[38] Notice I put "M" here instead of "M1" because Lowe seems to understand that giving it a moment in time complicates his claim.

Lastly, if it is true that M is causing the fact that P2 (at T2) led to P3 (T3), one must ask if M was present at T2, because if it was, it seems like it was a direct cause of the next event. Even if it were an indirect cause, it still caused an event, so it is a transitive cause. On the other hand, if M is no longer present at T2, how could it be exerting any causal influence on P3? As a past transitive cause perhaps?

Now, Lowe makes an exotic analogy (2000, p. 583) for the intelligibility of such a scenario. Imagine a world with no first cause and no infinite past. What would a world look like? Lowe says "a physical world which has no beginning in time —no first physical event—need not have a past of infinite duration, any more than a line of finite length need have a first or last point" (ibid). Such a line is presumably forming a circle, so I take this world without beginning to be a cyclical world which recurs without a "first" event. If it is asked why this world rather than another exists, the answer could be God's choice. This is a case of the mental property of God causing a physical state of affairs with no first physical event for there to be the "sufficient physical cause" problem.

Though this logic makes sense, it does not help the situation. This is because a mind in this world is nothing like a God. Minds in this world are finite and most importantly exist *at some point in time*. Furthermore, the relation of a mind to a bodily act is not like *creating something into being* as Lowe's example. It would be difficult to make sense of how a mental property could cause some physical facts to be some way.

2.5 Should we Countenance the Possibility of a Non-Physical M Given the CCP?

This brings us to Lowe's concluding remarks on Dualism. What Lowe has provided us with is the fact that given a CCP principle formulated as a plausible empirical hypothesis such as (C) or (1H), there is a logical possibility that M could still exist and play a causal role. At the end of the essay, Lowe challenges us to explain why we should suppose an identity of mind with brain states, given the logical possibility just mentioned. Though Lowe himself dismisses counterarguments against mental states dependent on the strangeness of interaction between mental and physical phenomenon, I believe this is a legitimate point of push-back.

Afterall the mysticism that would shroud a causal interaction between what are two completely disparate ontological natures is certainly a good reason to reject this sort of

phenomenon.[39] As a general rational and sceptical outlook, we should be wary in committing to the costly postulations of unnecessary objects to explain the states of affairs at play in (C) or (1H). We should reject M if it is unnecessary, and it should be rejected, especially if it is unnecessary *and* commits us to a new ontological type of thing and type of interaction beyond what our successful naturalistic framework has provided us with. Furthermore, within physics, the conservation of energy (of little concern to Lowe) has been absolutely established and since mental causation cannot find a coherent place within this system it should be rejected. That is, at no point is there a question of energy going anywhere aside from physical events and accounted for by physical properties alone. The best argument for the truth of Dualism comes from the supposed evidence that is presented to us in our own consciousness. However, as argued above, when we consider what the evidence actually indicates, there is not a sufficiently strong connection to the conclusion that there exist non-supervenient-mental entities.

In conclusion, despite Lowe's insistence that it is an open question that there are non-physical mental states operating in some cases of causation, I believe there are very weighty reasons against accepting its ontology, such that the acceptance of non-mental (and non-supervenient on the physical) entities would be based too heavily on the mere appearances given to us by introspection. That is, if we cannot possibly empirically observe the kind of ad hoc mental cause promoted by Lowe, we do not have good enough *evidence* for its existence. Of course, this brings us to the question of what counts as evidence and which kind is good and admissible.

2.6 The Crux of Mentality

One might argue that I have only shown that there is a logical or behavioural sufficiency of physical events but that I have overlooked explanatory sufficiency. Lowe argues that the scientists might be able to explain all behaviour of a person but might be overlooking certain important factors beyond what she can observe. That is, the neuroscientists might be missing the property that links to physical events together of what would otherwise be coincidental, whereby this link cannot be observed physically. Furthermore, what if the mind was playing some unifying role unbeknownst to the observations? My reply is that such claims would require evidence of which we have none.

[39] Indeed, it is for this reason that the strange doctrine of Occasionalism arose. There may be other accounts of causation which can better make sense of this, which I will discuss later.

Consider the unification of the mind. Perhaps it is to be identified with the ongoing processes that occur among the flux of the brain's changing atomic and neural structures over time. Or perhaps it occurs within each moment as some sort of non-reductive dependence relation. As a reductionist, one is assured that there is enough causal power within the stuff of physics alone to unify and modulate the whole essence of a mind as it continues to exist, constantly in flux. There are many physical forces at play that sustain the attraction of the molecules, such as the electromagnetic force, as well as a myriad of other intermolecular forces and chemical interactions, all of which are well-understood within the physical sciences. There is no need for the scientist to postulate another causal power or entity in their explanation of the bonds of chemistry that keep the brain's parts communicating in the harmony requisite for the unity of the mind.

Now, it might be said that there are two facets to this issue and I have addressed only one: namely, that the physical continuity and unity of the physical brain is fully covered by the natural sciences. That in describing the third-person interactions of the atoms, the laws of physics determine it all. But the other issue, as Leibniz stressed, is the apparent unity of the parsed sensations themselves, within the mind's eye. Why and how is it, they ask, that all of our individual conscious experiences, thoughts, hearings, sights, etc. all seem to occur as neatly packed into one locus that is our conscious perspective?

Thus far the problem of unification parallels the discussion we had earlier about the CCP. There, the issue was about the redundancy of a mental property and its place within the physical *series of affairs*. Here, the issue is whether or not we require a mental property to *unify* the brain/mind[40] which may be conceived of as being a distinct ontological phenomenon than just any mere *temporal causal influence* that determines the event that follows. Another way this discussion parallels that of the CCP is the epistemic perspective via which one feels obliged to postulate a non-physical mental property: not from a consideration of causes and effects within the observed realm of third-person mind independent objects (i.e. brains, chemicals, etc) but rather what we perceive in our own minds or bodies through introspection.

What would be required for the non-reductionist is that there is a series of affairs within one's nervous system observed by the scientist, but that there is some piece of the puzzle

[40] One important difference being that unification may happen at a simultaneous moment, between M1 and B1. Whereas the issue of the CCP is the leap from M1/B1 *to* M2/B2 after time has passed.

missing.[41] A power unaccounted for, because it is not just a neuronal state. Instead, that missing piece to the scientist's eye is a real power seen only by the mind's eye of the subject experiencing mental states.

The problem with this way of looking at the situation is that in actual scientific practice, for example in neuroscience, there never seems to be this missing piece of the puzzle. As Melnyk (2003b) puts it, there has never been a case where a scientist looks at evidence and finds that the conservation of energy law did not hold. Nor will it be likely in the future that this will occur. Instead, those who disagree, merely hold that it is a *feeling* that the capacity of their mind to act seemed to come from that conscious aspect they experienced in the moment before their action occurred. Or, instead, if it is the claim that even the neuroscientist should countenance a non-physical unifying force to explain the brain, this is only a hope that neuroscience will not one day uncover all such explanations.

2.7 Evidence of Causes

The term "evidence" concerns the data we have in order to make a judgement based on its truth. Good evidence will be that sort of data that is a reliable indicator that the judgement in question can reasonably be inferred from it. I take it that a naturalistic philosopher will dismiss certain kinds of evidence that are not empirical, for example those relating to religious scriptures or dubious testimonies. As science is understood to be the pinnacle of organising good evidence properly, this is the reason why its discoveries must be respected by a rational person. To form a body of propositions from publicly observable evidence, such that (almost) everyone can agree on what is happening once enough evidence is gathered, this is seen as the paradigmatic case of good reasoning.

Its proof of success is in science's ability to predict and explain phenomena, though its ability to "explain" is more contentious. It might be that science is not fit for explaining everything within its positivist or verificationist principles. This parallels my argument in Chapter 5 about how science may be blind to categorical properties, therefore it cannot explain the nature of things. It can only give a description of cause and effect, a structural system regarding their dispositional properties.

[41] This is a separate issue to the explanatory gap. That merely means one cannot "know what it is like" behind the neuronal states; it does not necessarily affect the causal series of affairs.

The worry might be that though science provides us with much knowledge, such that we have learned much through the empirical evidence gained from the studies of the natural sciences, it misses an important kind of evidence concerning our conscious experiences themselves. We may call this "subjective evidence," whereby we take as our evidence not the publicly observable objects out there in front of us, but rather our means of observing in the first place, i.e. through some mental perception–the phenomenal aspect of our sensation of seeing or hearing, for example.

It seems to be inherent in science's methodology that it overlooks these perceptions themselves because it takes the perceptions and their nature to be an accurate guide as to what is in front of us. That is, there is an assumption within how science actually operates that it holds our perceptions to be a reliable source of information about the external world, but a study of perceptions through one's own phenomenality is dubious because it is subjective and not subject to rigorous testing or understanding. That is, the way science operates presupposes that our senses make contact with reality in a truth-conducive way. This works only for subject matters which can be observed externally, but the very act of perceptions themselves are closed off from such an analysis. I discuss this further in the final chapter.

What discovery might we make by introspecting on our conscious experiences rather than ignoring them? Dualists would state the following two claims:

1) It provides evidence that qualia are potent and "we" are potent actors in this world (e.g. that my consciousness of my volition and how it feels provides evidence that I, insofar as my consciousness is real and efficacious, was a factor in causing the following events).
2) It provides evidence that there is some kind of existence that is not physical, because our consciousness appears to be of a non-physical nature when we introspect on them while they occur.

These propositions may hold some intuitive appeal but I argue that they do not provide more than specious appearances due to certain awarenesses of one's own states, such that it might *feel* assured that one's conscious decision or qualia was efficacious. However, we have good competing reasons that inform us that this is merely an illusion. Indeed, it parallels the

analogous poor argument that "I have free will because I *feel* that I am free." The matter is obviously not so simple, and illusions abound.

In response to (1) I have in mind, first, the kind of evidence presented regarding the CCP mentioned earlier, namely that if the physical causal series is sufficient, then this leaves no room for a *distinct causal series* of the mental type. Second, there is the epistemological argument made by Hume that we do not perceive the causal connection that is supposed to hold from the moment that, for example, I have a conscious desire to perform an action, and then my body moving accordingly. I believe there is no actual sensation of the power itself, only the knowledge of what comes before and after said sensation.[42] Instead, we are only aware of our qualia in each proceeding moment in time, regardless of what power caused it.

In response to (2) I would like to draw attention to the fact that it is dubious to attempt to infer from our mode of perceptions to the actual ontological nature of them. This is because there is not enough information in the fact that we have qualia, to the fact that qualia are *not physical* because, for example, that it does not *appear* (e.g. look or sound) physical. It would be reasonable to be sceptical about our ability to extract data about types of existence of things merely in virtue of the feelings given to us by introspection. After all, what would it take for what we experience phenomenally to tell against its being physical? We simply do not have enough warrant to tell one way or the other. Instead, a better method for being informed about what kinds of existence we should postulate of objects such as the mind, would be to cohere our understanding of it with the rest of our empirical body of data gathered from science.

I have argued that scientific evidence provides a reasonably testable hypothesis, namely that at every moment of time there is a sufficient physical cause to every event. These empirical discoveries are indeed logically consistent with the insistence that there *may* be hidden non-physical mental intermediaries at play somewhere, but there is certainly not a good enough reason to postulate them. In line with a naturalistic outlook of the world, whereby there is a

[42] This argument as I have portrayed it here may seem to be linked to the general problem of whether causation is nothing but a "constant conjunction" rather than a real power in Nature, though I wish to separate the two arguments. Here I mean only that it is quite plausible to our consciousness that we do not have the kind of solid evidence of our minds being causes or powers as we might suppose, for the evidence does not capture what is needed, i.e. the power of the mind being presented to our phenomenality. Hume's argument about constant conjunction applies to everything (including the essence of external objects themselves) in a more general sense.

unity of all things within the subject matter of the sciences, we have positive reasons to adopt a plausible metaphysical theory, i.e. CCP as described by definition (A).

2.8 An Inference to the Best Explanation

Finally I wish to discuss an important dimension of the CCP, namely that it provides us with a reasonable prescription of what we should or should not posit to exist. Such prescriptions depend on hypotheticals. If we accept the CCP which is a far less controversial premise than physicalism, then we ask ourselves "Should we postulate a mental cause amongst the physical events?" One could respond with various positions such as epiphenomenalism or overdetermination. But the point of the Exclusion Argument (discussed soon) is to question whether it is acceptable to commit to these exotic existences or whether it would be more in tune with the empirical evidence (of CCP) that we do not extend beyond what is warranted. That is where considerations about theoretical virtues such as parsimony come in.

Tiehen (2015) sets out to argue that the CCP is founded upon a prior assumption that begs the question: namely, we have already begun with the idea that physicalism is true. This would then lead to problems with the relationship between CCP and physicalism and how one is supposed to justify the other. On the contrary, I argue that Tiehen is mistaken because the CCP in fact has a completely separate justification which does not leech off physicalism itself. Even assuming non-physical entities existed, through the impressive evidence of all events having physical causes, among other facts such as never observing any spooky entities, it is reasonable to come to a distinct broader conclusion: that physicalism is true.

So far, I have argued that CCP provides abductive reasoning to believe the truth of physicalism. Tiehen himself suggests that this is the way to go, but that reductionists cannot appeal to this on pain of metaphysical explanatory overdetermination (I discuss this issue soon). I will argue that this is false and has no bite. Nevertheless, I wish to cover Tiehen's attack on the use of "induction" regarding CCP and its relationship with physicalism.

Tiehen says that the inductive case for CCP commits one to "holding that (Closure)'s [CCP's] truth has some explanation independent of (P*)'s [Physicalism's] truth" (Tiehen, 2015, p. 2418, my square brackets). Indeed it does; neuroscientific evidence points in the direction of CCP but *not necessarily* to the stronger thesis of physicalism. CCP's truth is learned from scientific practice of observing physical events, not from a prior Metaphysical stance that physicalism is true.

Tiehen contends that if one is to accept the inductive case for the CCP as the proponent of the exclusion problem likely would: "you must not accept the counterfactual ~(P*) > ~ (Closure)" because how could one "simultaneously grant that if there were nonphysical events they would violate causal closure, and also at the same time insist that thanks to induction we know that causal closure obtains regardless of whether or not there are such nonphysical events?" (Tiehen, 2015, p. 2419). There are multiple problems with his argument.

First, the CCP would still be true if physicalism were not true because a dualistic epiphenomenalism or even random entities of other attributes that do not interact with the physical are still consistent with the truth of the CCP. Second, "induction" is not supposed to be a process of absolute confirmation. Of course it is the case that if there is inductive evidence for Theory X, then that still leaves the question open as to whether Theory X is actually true; we just have good reason to believe in it. Tiehen relies on the reductionist apparently not being able to follow along these lines because, though it would be cogent if the truth of (Closure) could be established on separate grounds to physicalism, it would lead to metaphysical explanatory overdetermination. I will refute this later in the next chapter.

I agree with Melnyk's take on the CCP. That is, we have *inductive* evidence, through observations of physiology, neurobiology, etc. and consistently find only physical explanations for every result. Tiehen says that this is mistaken since these causal chains *indirectly* affirm (Closure), by first providing *abductive* evidence for physicalism (Tiehen, 2015, p. 2422). His two main reasons (Tiehen, 2015, p. 2423) for this are that it doesn't lead to a metaphysical explanatory overdetermination of (Closure) with physicalism. Again, I will tackle this shortly.

Tiehen's other reason is that causal arguments have an odd and rare structure; it is only found in the mental exclusion argument. It is not found in typical scientific reasoning. This is an unpersuasive point because some metaphysical issues touch upon unique features of the world, special problems therein, whereby novel arguments are required. It should be no surprise then, that new forms of arguments are required in order to tackle these problems. At least insofar as considering an epiphenomenal property is a strange direction to take, and unique to the problem of dealing with causation in the metaphysics of mind, in general, causal arguments are quite common. If someone argues that they have already accounted for the causes sufficiently within her Theory Y, and her opponent argues that it needs to include other variables, the proponent of Theory Y would likely make a causal argument that "No, there is no need for your variables. It is incompatible or redundant."

Furthermore, Tiehen's motivation seems to be to give non-material mental entities power intrinsically. Thus, he tries to reformulate epiphenomenalism as nothing but a manoeuvre to save dualism (Tiehen, 2015, p. 2423). Once we have established physical causal reign, if one still wishes to posit non-material entities he will need to do so in a way that is not causal in the traditional dualist way and so posits epiphenomenalism instead. The truth is, we find no mental force (such as entelechies or vital impulses, etc.) nor a mysterious gap of missing puzzle pieces when explaining any event we observe. A route by which belief in non-material entities are warranted would come either from armchair arguments (Tiehen, 2015, p. 2422) or from empirical considerations. The latter would look something like an observed occurrence that appears to be unexplained by the physical alone.

2.9 What is the Essence of Causation?

Here is how I believe genuine "causation" (AKA causal determination) should be cashed out. There is a minimal sense in which x at time t1 causes y at t2, such that x *causally determines* some feature F (including the very existence) of y iff:

1. Power-bearing: x possesses a categorical property whose nature includes a single-track power to manifest a certain type of production.

2. Productive manifestation:
At t1, this power of x manifests, and this manifestation is the productive process responsible for the obtaining of feature F in y at t2.

3. Modulation by structure: The productive manifestation may be modulated or constrained by structural features, circumstances, or other partners, but these do not replace production with mere counterfactual influence. Rather, they shape *how* the productive process unfolds.

4. Temporal order: Causes require strict temporal directionality: $t_1 < t_2$. Earlier members of a productive chain can count as causes of y, though not as the efficient or proximate cause.

5. Ontological explanation: The productive manifestation of x's power provides the ontological reason why feature F of y is as it is. This explanation is metaphysical, not probabilistic.

Determination:

I take the "determination" relation to be a genus of what unifies causal, constitutive, and grounding-like cases. A determination relation holds whenever the presence or nature of x is ontologically relevant to the nature or existence of y. "Determination," in this sense, is a family-resemblance term covering a cluster of ontological explanation relations that include grounding, realisation, constitution, and causal determination. Each of these are tied together by the idea that x provides a reason[43] why y is the way it is. *Non-causal* determination (e.g. simultaneous relations such as realisation, supervenience, etc.) involves no productive manifestation and no temporal ordering.

Causal determination

This is a temporally ordered, productive, power-manifesting species of determination. Nevertheless, if a non-causal determination relation is a reason for any power involved in a causal determination, then it counts as a legitimate cause as its power was relevant in the production at some point. Furthermore, if x causes A, and then A causes B, then C, then y in a temporal sequence of events, it is fair to say that x caused y, though not as an efficient cause. However, causation itself occurs only in virtue of efficient causation: x caused y only because it was an efficient cause of A, then A to B, and so on. My argument for this thesis is that no mental property or non-reductive mental token is ever involved in a genuine case of causal determination for any event that occurs.

Where does counterfactual analysis fit into this framework? I take it that counterfactual dependence does not metaphysically constitute causation. Instead, it is merely an epistemic tool for identifying causally productive relations. For example, if at time t1, a car moving at high speed is about to make contact with a hard wall, and at t2 the front of the car is crushed, that would entail the counterfactual claim: if the wall had not been there, the car wouldn't have crashed. Therefore, the wall caused the crash of the car. Additionally: if the wall were not hard, the car would not have been crushed. Therefore the hardness of the wall was a cause in the car's being crushed.

However, though counterfactual dependence often tracks a causal production relation, they also admit irrelevant or parasitic dependencies. Therefore, they cannot define causation. For example, one event can counterfactually depend on another even when no causal relation

[43] By "reason" here I mean some fact responsible for such and such. I do not mean it "intentionally," i.e. as something grasped by the intellect per se.

holds. If a shadow of a moving ball were not at position P at time t1, it would not be at the later position P* at t2, yet the earlier shadow does not *cause* the later one; both positions are jointly fixed by the underlying physical structure of the ball.

The same point applies to qualia on an epiphenomenalist picture. Because qualia supervene on a physical base, removing a quale requires altering that base, and it is the altered base, not the absent quale, that would generate any downstream physical difference. The counterfactual "if the quale were absent, the later state would differ" therefore reflects only the underlying structure that qualia track, not causal influence by qualia themselves. Qualia are structural co-variants of the physical, not participants in the causal order.

Indeed, even defenders of counterfactual theories (e.g. Lewis 1973, Hall 2004) acknowledge that not all counterfactual dependence is causal. They emphasise that causal counterfactuals must hold under *minimal* alterations of background conditions; when varying a feature necessarily disrupts the deeper structure that also determines the outcome, the resulting dependence is non-causal. This is why shadow positions fail to qualify as causes despite counterfactual linkage, since the dependence arises from the structure, not from the events or properties that ride on it. The same diagnosis applies to qualia. If removing a quale inevitably alters its physical base, then any resulting change to later events is produced by the modified physical structure alone. Qualia merely co-vary with that causally relevant structure without *contributing* causal powers. Thus, even by counterfactual theorists' own standards, the dependence of later events on the presence of qualia is structural rather than causal.

Chapter 3: The Exclusion of Genuine Mental Causation

3.0 Higher-Order Properties

Before getting to the problem of the Exclusion Argument, it is worth noting that the problem arises when one postulates the existence of higher-order properties that supervene on lower-order properties. If so, for example that mental properties supervene on physical properties, there will be an apparent conflict between which of them (e.g. just the physical, or both) are contributing powers toward which event follows. There are in fact two layers to the Exclusion Argument, which often in the literature are not pried apart. I believe this is because talk of properties and property instances often get muddled, but Marras for example (2007, p. 317) overtly addresses that issue. I shall discuss this later in this chapter. These two layers, as Lyons (2006, p. 767-768) points out, are A) "event epiphenomenalism" and B) "property epiphenomenalism. In other parlance, (A) is token-epiphenomenalism and (B) is type-epiphenomenalism (Robinson, 2010, p. 539).

Event epiphenomenalism has it that the particular token event did not have any power. Type-epiphenomenalism says that if an event caused the next, it was not due to the property in question, which would be epiphenomenalism. For example, NRP seems to suffer heavily from type-epiphenomenalism but not as much with event epiphenomenalism. This is because they argue that the mental state is token identical with the brain state, so if the brain state is a real cause, then since they are identical, the mental state is just as much a real cause. However, the Exclusion Problem bites by asking "Was it not true the event followed purely because of the *properties* of the physical token alone?"

Non-reductionists suppose that higher-order properties are needed in order to explain certain phenomena in the world, most notably genuine mental causation. I believe that the problem with higher orders of reality are the following two entailments, both of which I wish to reject in the spirit of deflationary metaphysics and consistency:

1) There exist entities over and beyond the fundamental physical world, called "higher-order properties."

2) Higher-order properties are causally potent, i.e. there are some higher-order properties whose presence cause an event different to the event that would've been caused had there not been any higher-order properties.[44]

I argue that it would be profligate to postulate higher-order properties because a more deflationary theory is perfectly adequate, and secondly that given what we know about the world, it would seem to lead to an inconsistency to that theory if we were to accept higher-order properties. The goal of this chapter is to argue that if genuine mental causation is excluded and proven to be unreal, this would provide support for the thesis that higher-order properties are redundant. I will conclude that the answer to the problem of mental causation is that there cannot be any genuine mental causation and that we should instead embrace reductive physicalism. I end with a proposal for how this might look.

Regarding (2), a quick note for those who believe that "if property m supervenes on p at t1 and the next event at t2 is m* supervening on p*" then that already proves that m was a cause, because without m, p wouldn't have been there, so p* wouldn't have occurred. As opposed to this, one need only consider the very *possibility* of epiphenomenalism. Imagine epiphenomenalism were true, and m is the epiphenomenal quale. Well, since it supervenes on p, if m were not there, p wouldn't be there, so m was a cause of p*? Clearly this is absurd because it doesn't allow epiphenomenalism to even get off the ground; this suggests that to be a real *cause* (in the relevant sense) must be something else. In other words, it is a power.

On the other side, some NRP accept that mental properties are not powers, but argue that they are still causes of events because they figure into useful true explanations within our theories. We have higher-level laws whereby causes of events are explained within that level of abstraction. But this too is consistent with epiphenomenalism, namely that all powers are only of third-person objects captured by the powers within the laws of physics alone. So again, epiphenomenalism is a viable contender.

[44] I will discuss the modality behind this further down. After all, there are ways to have "honorary causation" in the sense that it was there in the cause, or if it were not there, the effect wouldn't have happened, yet without being actually relevant powers.

3.1 The Problem of Mental Causation

Why is there a *problem* of mental causation? It would seem obvious to the senses that one's mental states, e.g. beliefs, perceptions, sensations, are often causes of events such as movements of the body. But if we already are able to explain every event in the world through a consideration of nothing but physics, then it seems that we do not need to posit anything outside of that, i.e. non-physical mental entities. Assuming that we have explained the events in virtue of identifying the metaphysical causes or powers that determine them, the *physical* world[45] alone suffices to provide every cause of an effect that we observe in nature. This is the premise of *The Causal Closure of the Physical*. Such a premise is well founded in the empirical sciences, from physics all the way up to neurobiology. So if every physical event can be fully explained via the powers of physics alone, where does that leave any room for powers outside of that realm, i.e. the mental?

If we suppose that the mental is reductively identical to the physical, there is no conflict of powers; the powers of the mental just are those of the physical. That way, the physical has a more fundamental nature and it is only those powers which make a difference; the mental property only rides on that physical power. As such, this would not be a case of *genuine* mental causation because it is superseded by the physical. In other words, the problem is not whether mental events or properties are causes at all, but rather whether there are any events that are determined *in virtue of mental properties*. The "problem of mental causation" appears to arise only for those who hold that the mind does not reduce to the brain (assuming minimal physicalism).

Here is the argument for the Exclusion Problem in concise terms:

1) Causal Closure of the Physical[46]
2) Mental causation does occur

[45] There is a distinction to be noted about the term "physical" as that belonging to a naturalistic (i.e. informed by science) worldview, such that the causal closure need not necessarily be limited to physics but might include neuroscience as also providing part of the CCP as a distinct ontology. But oftentimes, "physical" implies "distinct from non-reductive *mental* properties".

[46] "For every *physical* event, there will be a sufficient physical cause for it." I do not always specifically write of the explanandum event that it is physical as this is already presumed to be the case (according to Dualism there might be events that have no physical element, but that is a different matter entirely).

3) The mental (strongly) supervenes[47] on the physical

4) (No overdetermination or epiphenomenalism)

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5) Therefore the mental is identical to the physical.

There are many formal expressions of the Exclusion Problem in the literature, some of which attempt to formulate it as a deductive argument. I do not believe that the argument can be given a deductive form unless many complications are added and the implicit assumptions are stated explicitly (for a commendable formulation of this kind, see Marass 2013). Such details are not themselves essential to the force of the argument. As such, I will treat the issue as one which, like many good theories within Metaphysics, relies on abduction to some extent.

Allow me to flesh out this argument dialectically. Suppose M[48] is a supervenient mental state which supervenes on a physical state P at time t.[49] After a moment in time, t* the event is such that now there is M* which supervenes on P*. It is natural to say that after the passage of time, given the physical laws of the universe, P became P*, or in other words that P was the cause of P* that occurred at that later moment of t*.[50] So we can say with some certainty that P was the cause (or reason) for P*'s occurrence, and indeed there is a strong case to suppose that P alone was sufficient because certain laws of physics, biology, etc. would fully determine[51] the

[47] I am not concerned about the modality of supervenience generally. I take its most important formulation to be that "in this world, necessarily, for any supervenient property P* with a base P, if P exists, P* exists. And, if P* exists, necessarily, P exists." Another traditional expression of supervenience is that "there cannot be a change in P* without a change in P." Either definition will suffice, but the latter has more problems to be ironed out with regards to mental causation, especially with regards to multiple realisation.

[48] Whenever I speak of "M" or "P", etc., I am speaking about exact token objects - they cannot be substituted with "mental state in general" for example.

[49] I believe that mental predicates such as beliefs, intentionality, etc. provide no problem concerning mental and physical causation (viz. even conceptually, we can reduce such states to physical language). The troublesome mental states are qualia because they are something that is "left out" of the physical descriptions, so M can be thought of as some quale or other.

[50] I believe that in some sense, all of causation is merely a change of matter over time. Things are always moving and changing. What we stipulate as the object or subject (within our analysis) of a cause or change is relative to how isolated our system is, e.g. if we take a person as the subject of inquiry, his states are constantly changing over time because of the chemical changes within him. But we can go further and see the interactions of things acting on each other inside of him.

[51] I am not committing to the fact that laws themselves have or are powers. One may interpret laws in their own way; what matters is merely that the structure of the universe plus everything within it, together, determine certain changes over time.

state of affairs that followed.[52] The question is, how can the mental cause fit into this story? Kim argues that barring epiphenomenalism and overdetermination, it must be by existing as those physical causes, identical with them.

Once we have identified the sufficient cause for something, it seems gratuitous and irrational to posit something else as also being present. So, for example, after seeing a rock break a window, we would not suppose that there was also an invisible rock that hit the window at the same time which broke it. Though caricaturised, this is supposed to be analogous to how the scientist observes the complete cause of an event, i.e. the physical mechanisms of the brain, and then to posit that there was also a non-physical mental property which played a role in effecting the event.

NRP is supposed to have an answer to this conundrum. The physical property instances of the brain cause the next event, but the mental property instance supervened on the brain state in such an intimate way that it is ascribed some of the causal powers of that base. Since the mental property instance was so dependent on the base, it is supposed to be compatible with its powers. Kim disagrees. He argues that if the physical base has done all of the work, what work is there left for the mental property instance to do? Even if it supervenes on the physical, it still seems to be competing with the already exhaustive powers of the physical. So the situation is one where we have the following contenders to explain the event that occurs at t*. Was M* caused by M in the preceding event, or by P* in the simultaneous event?

Kim (2005) mentions a tension between the horizontal determination (i.e. causal production) of the event at t, with that of the vertical determination from P* at t*. These are two distinct kinds of determination relations so I do not suppose there is a tension here. What is important is the issue of what caused the event P*/M* at t*. Since M* is fully determined (with absolute necessity) by P*, i.e. P*'s existence is a necessary and sufficient condition for M* to exist, we must ask what brought P* to occur. Was it P, or did M have any influence? If we think it was P *and* M then we have the problem of overdetermination that we wish to avoid. If we think M had some power that contributed to P*s occurrence but that power was distinct from P, then we have some sort of emergent power that rides above the CCP that involved only P. How might the non-reductionist overcome this Exclusion Problem?

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[52] The indeterminacy of a stochastic metaphysic, i.e. that the world is indeterministic due to certain interpretations of quantum mechanics, is irrelevant to the arguments about mind and body. One may suitably speak about "determining" as "fixing the chance of so and so affair occuring." Either way, it is caused by the *physical*, that which is within physics.

3.2 Overcoming the Exclusion Problem

I will cover a range of potential solutions to the Exclusion Problem. I argue that, so long as we accept Kim's reasonable premises, non-reductionist arguments fail to redeem the causal potency of mental properties. Let us first inspect the premises of the Exclusion Problem as I have presented it. (1) The CCP is not without its contentions but I shall offer it as an established doctrine in the sciences since we have already covered that in the preceding chapter; so far we simply do not have a good enough reason to suppose that there are events that do not have physical causes that could be identified. (2) There is no doubt that mental causation appears to be true, at least on the surface. We observe it in ourselves through introspection as well as of others when we explain their behaviour. The question is whether this mental causation is piggybacking on the physical causation, providing nothing itself. (3) I shall discuss the supervenience relationship below. It plays one of the most significant roles in the problem. (4) Avoiding epiphenomenalism and overdetermination appear to be undesirable options from the start, though an argument is needed.

Overdetermination is undesirable because it would lead to strange coincidences occurring in people all the time, and second that it would appear that the mind is somewhat redundant since it is only duplicating what would otherwise occur anyway. Epiphenomenalism's main problem seems to be that, since it does not save *genuine* mental causation, what good does it do us? Second, though it is compatible with the CCP, it postulates nomological danglers that are strange and unnecessary. Firstly, it might not do us any "good" but it might be a bullet one must bite. Regarding the second consideration, if a metaphysical system is too austere that it rejects something incredibly essential that is its fault. Occam's razor only applies if a viable explanation can be given without postulating the entity in question. Since qualia are the only thing in the world that cannot be doubted, and if our best arguments show it to be powerless, then even if it is strange, it would need to be postulated.

3.3 Modality of Supervenience

I shall begin my analysis with a discussion of supervenience. This is because some philosophers (e.g. Arnadottir & Crane 2013, Raymont 2003, Marras 2007) argue, contrary to Kim's contention, that the concept of supervenience actually extricates the non-reductionist from being committed to something like overdetermination. This is so even though they suppose that the mental cause is a sufficient cause. I believe that many of the puzzles that arise from these modal

affairs of how we are to flesh out the material conditional comes down to whether they are cashed out on *nomological* (concerning our world's particular set of laws of nature) or *metaphysical* (concerning any world we can *imagine* to be logically consistent) grounds.[53] This much has already been well established, but I wish to stress an account of understanding the hypotheticals within the broader epistemological framework of *imagination* rather than to place too much emphasis on the existence (as though they are metaphysically real) of other possible worlds. This is because my sentiments lie with Modal Fictionalism (See Rosen, 1990), but that is not essential to this thesis.[54] When we are theorising about what is possible, we do so on the basis of concepts alone or by relation to our laws. It is a tool to think about consistency or to draw out ideas.

In the case of modality here, we have the following conflict where we want to reconcile the following two statements:[55]

a) *Mental sufficient causation proposal:* If P did not exist, M on its own would cause P*.
b) *(Nomological) Supervenience thesis*: If P did not exist, M could not cause P* because M would not exist.

Both of these claims seem to be entailed by the supervenience thesis of the mental on the physical in conjunction with the proposition that M is a sufficient cause of P*. However, (b) contradicts (a), and presumably the NRP will want to deny (a). A NRP could formulate (b) as a reductio ad absurdum argument against the statement (a) in an attempt to hold that (b) refutes (a) whilst still insisting that M is a sufficient cause of P*. I propose that their argument, I call "The Reversal Argument" could run as follows:

X = P exists.

Y = M exists.

Z = P* occurs.

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[53] See Noordhof (2003, pp. 87-88) for a general discussion on supervenience entailments in relation to metaphysical or nomological grounds.

[54] As I have spoken about other possible worlds etc. in this thesis, I hope to have left it neutral, metaphysically. However, when I speak about "zombies" later I explicitly forward it within a Modal Fictional understanding of the concept.

[55] I say "statement" here instead of "proposition" because I believe that many of the problems of this nature are muddied by language, rather than the actual referential content of those claims.

1) (a): ~X, Y, Y -> Z
2) (b)'s assumption: Y <-> X
3) From (2) = ~X -> ~Y
4) ~Y | (1 - 3) modus pollens
5) Contradiction from (1 & 4). Z is not determined by Y.

Thus, the NRP can deny the substantive individual power of M on its own. As such, the attempted remedy to this incompatibility would be to deny that the mental property could in fact have been a psychic cause[56] and this better be avoided because that would entail the *possibility* (to be defined soon) that the laws of physics would be broken. That is, the fact that a possible self-sufficient psychic entity could produce some state of affairs without it being via some physical means would be contrary to any physicalism. How, then, should we deal with the defence that the NRP does not have to commit to this psychic power given be the truth of (b)?

I argue that the supervenience claim of (b) will not save the situation because it relies on a slip of equivocation. That is, it is true that given the nomology of this world, M could not exist without P, but we are assuming that *if* (metaphysically) M *could* exist without P, what would be its essence? In order to be a physicalist, at the very minimum they must commit to the proposition that a physical basis is required for any effect to follow, and this is counter to what (a) asserts. Earlier I stressed the importance of "imagination" as a way of discovering what is entailed by certain affairs. This is because it illuminates the concepts about which we are theorising, without tainting them through a focus on concrete worlds. To rigorously conceptualise what it means to be a token sufficient cause, one would find that it is within its very meaning that it *could* be a cause all on its own, even if that were in a different world. If one (through overdetermination, for example) argues that M is a sufficient cause then it must have a purely psychic power to it even if it ontologically depends on the physical. Since we can quite coherently imagine M as a cause on its own (otherwise how is it sufficient?) we can infer that it caused the next event on its own (*when conceiving it as distinct from its realiser*), it would be doing this by a purely mental power.

However, there is another potential argument which runs on a similar train of thought, but which I believe should also be rejected in kind. This is the supposition that M is a power because "if M were not there then P would not be there." So, for example, a reductive physicalist

[56] I say "psychic" instead of "mental" to indicate its autonomy as mental-stuff or force.

would contend that a closer scrutiny into the situation of properties and powers would have us conclude that all of the *real* power lies in P, given the exclusion problem. In response, a non-reductive physicalist might assert the following statement: "M was a power because if you took away M that would entail that you would have had to take away the essence of P such that it was some other brain state, because it is only if you have P that you have M."

Such an argument fails in the same way that the following example shows. Suppose there a concrete brick drops on a pot and breaks it. The state of affairs before is P at t, which causes event E* at t*. The brick is orange. We could state "if that brick was not orange at t, it would not have broken that pot" because "it would have had to be a different object if it were not orange; it wouldn't be that same brick which had the power to break the pot." Given that we are talking about tokens here, this is fair, Clearly, though, the orange brick would have still broken the pot if the orange colour were washed off at some point or not. Analogously, though P would have had to be a different object (i.e. P's exact nature/existence would not be present) if M were not present, P still had the power to cause E*.

One might retort that the colour orange is an accidental property to the brick unlike the necessary (supervenience) relationship of a conscious brain state expressing M. But this does not change the situation since we are talking about tokens, and that token brick really could not have been there without being orange. To conclude, there is often the muddling of the modalities involved. It is true that *in this world* that to remove M would be to take away (or change) P, but the question is whether, if there *were* a world where P existed without M,[57] would it not have been the sufficient and complete cause to the redundancy of M?

3.4 More Remarks on Supervenience

The Reversal Argument relies on a technicality that cannot bear the weight placed upon it. It claims that the mental property M is not an overdetermining cause because, although M is stipulated to be a sufficient cause of E*, M could not occur without its physical base P; therefore, we cannot say "M would have caused E* even if P were absent." But this manoeuvre misuses the conditional. A counterfactual of the form "if M were present without P, M would still cause E*" is not intended to describe a metaphysically possible scenario in which M genuinely exists without its base. Rather, it expresses the modal content of sufficiency: to say that M is a

[57] Which is to say, a world where the laws differed from our own.

sufficient cause is precisely to say that *M has the causal power to bring about E* on its own*, independently of what is required to realise or instantiate M in the actual world. Conditional statements of this kind do not assert that the antecedent could literally obtain; they function as indirect vehicles for stating what powers an entity *would have* if it were present in isolation.

Cashing out the meaning of the counterfactual amounts to a straightforward positive claim that "M has a causal power to bring about E in virtue of what it is," even though, in reality, M cannot occur without P. The reversal argument therefore fails to do what it aims. That is, supervenience may constrain the *existence* of M, but it does not constrain the *modal content* of what it would be for M to be a sufficient cause. Given NRP's own stipulation that M is sufficient for E*, it follows that M possesses a causal power that would, by definition, bring about E* even if instantiated alone. In that sense M is indeed an overdetermining cause: it has causal autonomy, a power that duplicates one already supplied by P.

If M were genuinely incapable of causing E* except via P's powers, then it would not be a sufficient cause at all. But since NRP insists that M *is* sufficient, the attribution of overdetermination follows directly. The reversal argument simply disguises this fact by equivocating between supervenience constraints on instantiation and modal claims about causal powers. This is a similar mistake as that made regarding the "modal fallacy."

For example, Bennett (2003) and Merricks (2001) both note that the fact that an entity *cannot* exist without certain background conditions does not entail that it *lacks* the powers or modal features attributed to it when considered in abstraction. The modal fallacy consists in illicitly jumping from "X cannot exist without Y" to "X would be powerless or impossible without Y," which confuses metaphysical dependence with modal capacity. The Reversal Argument makes an analogous mistake. It uses supervenience (a dependence relation) to cancel the modal force of "sufficient cause," which is defined independently of what is required for instantiation.

3.5 Possible Solution: Evaluate the Implicit Metaphysics of Events (Arnadottir & Crane, Raymont, Marras)

How might one overcome the Exclusion Problem without succumbing to the three supposedly undesirable options of epiphenomenalism, overdetermination of every mental cause, or reductive physicalism? I believe that the best solution would be to contest the implicit assumptions being made about the metaphysics of events that are at play in Kim's argument. This is the route that Marras (2003) takes. It seems that Kim's argument can get off the ground

only if it presupposes a certain metaphysics of events from the start, but if this is the case, he is begging the question against his opponent who does not accept his account of the nature of events.

As the standard goes, I shall call Kim's metaphysics of events "Kimian events." The contender of interest to Kimian events I consider is Davdidson's account: "Davidsonian events." The main difference between Kimian and Davidsonian events is that the former is more fine-grained, the latter more coarse-grained. What I take this to mean is that Kimian events can be dissected into its components with each of its constituent properties performing a more substantial role. Davidsonian events maintain the homogeneity of events, such that the event itself is substantial and is what provides the power to lead to the next event; to dissect it into parts and attribute powers to certain properties is to misunderstand its ontology. Technically, Kim himself does believe that what is causally efficacious in reality are not the properties of events, but rather the property *instances*. Nevertheless, Kim's account allows a focus on the "true" power/explanation of why the next event occurs in that specific way.

In a nutshell, here is why the Davidsonian ontology of events is apparently immune to the Exclusion Problem. Let us first consider Davidsonian events in their more traditional nominal interpretation such that an event does not actually consist of different properties, e.g. mental and physical. Rather, such a distinction is unfounded. We must take the event as a whole and it is that which has power. This account bypasses the exclusion problem because there cannot be a conflict between mental and physical powers if they are dissolved all together; the event itself causes the next event and it is not valid to identify what it was within the event which was "really" causally efficacious. Although such an account does seem to avoid the Exclusion Problem all together, I believe its cost is too great. This would be to deny the importance of properties and their powers in favour of a neutral monism, one which ignores much of what science purports to do: inquire and describe the various properties of natural objects.

If, instead, we accept that there are distinct physical and mental properties as the non-reductionist agrees, we are left with a different outcome. Raymont (2003) advocates a metaphysic of this kind. He argues that, since events are the real bearers of powers, when E at t causes E* at t* it does not matter if P and M within E both had equal powers. They do not need

to compete because E does all the work (Raymont, 2003, pp. 234-235).[58] Though the matter seems simple enough, I believe that if we press our analysis further we still end up with an exclusion problem. This is true in the same way that Honderich (1982) charged Davidson with epiphenomenalism. Honderich gives an example of an apple placed on a scale. It moves the pointer due to its mass, but not due to its colour. Sure, we can think of the event as a whole as moving the pointer, but it wouldn't make sense to say the colour, included in the event, had anything to do with the pointer moving.

So, going back to Raymont. We are supposing here that P, the physical property instance of E, was on its own enough to cause E*, so where does that leave M? It is true that under this account P is not directly competing with M for the cause of E* because they are not the right type of thing to do this (namely they are properties, not events) but it would appear that we are still left with the question of whether M did anything at all. M is once again redundant. We might have given it a place in the cause, but we have not thereby saved its *difference-making* essence.

There is another concern about the metaphysics of events worth mentioning. Kimian events are structured that any difference in properties must be a difference in event. An event is a three-place relation between object, property instance, and moment in time: e.g., [x P, t]. So [x, F, t] is a distinct event from [x, G, t] unless F = G. But the problem with this, Marras points out (2007, pp. 316-317), is that this very set-up doesn't allow the starting premises of NRP. That is because NRP wishes to make use of token-identity between M and P, but with a type difference. However, unless F = G as just mentioned, then the corresponding events cannot be identical. Token identity is not even possible under Kimian events, therefore, argues Marras, Kim's argument is unconvincing.

I find the basis of this argument to be a fair critique, but unfortunately it does not help the situation much. If one adopts a non-Kimian event ontology, the Exclusion Problem works all the same, as I just discussed. Even if there is token identity between M and P as one complex Davidsonian kind of event, the question is which of those were the power in question which caused the next event? Was it in virtue of M at all? If not, then epiphenomenalism prevails. Furthermore, Melnyk's NRP characterisation of his Realisation Physicalism (2003) is actually

[58] Under this metaphysic it is true that, technically, the event is what has the power. But "power" in its most fundamental sense is a "difference-maker" and so for that reason I believe M and P are still powers in some sense. Perhaps they can be termed "minimal powers."

immune to this non-starter event ontology problem. That is because Melnyk argues that token M is not token-identical with P but is *realised* by P (an asymmetrical relation).

Therefore it could be said that event [x, M, t] is indeed a different token and event than [x, P, t] but that M is realised by P and the former event supervenes on the latter. However, as I have discussed earlier and will do so later in more detailed discussion later in this chapter about Melnyk's account, it too does not escape epiphenomenalism for the reason that P does all the causal work, leaving M merely as a conceptual category that picks out P and its powers.

3.6 "Causal" or "Explanatory" Exclusion?

The concept of "cause" and "explanation" are tightly connected. The way I understand this connection is that there are causes in the world, i.e. token powers such as from events, concrete particulars, etc. that do not depend on our perceptions or reasonings. In other words there is a mind-independent world out there. We then cognise these states of affairs and rationalise them into coherent systems of thought; some of this involves "explaining" why some event occurred the way it did. I therefore take the concept of "explanation" essentially to be a mental phenomenon, one that *refers* to real entities in the world, e.g. actual causes or events, metaphors, models, etc. The sense and language we use to explain phenomena are quite often a feature of our intuitions more than latching onto real features or powers of referents.

Tiehen (2015) and Raymont (2003) question what is the extent to which the notion of "explanation" plays in the Exclusion problem. Tiehen, for example, argues that Kim is committed not just to "causal exclusion" but also "metaphysical explanatory exclusion" (Tiehen, 2015, pp. 2405-2410). The thought is that causation is just one type of metaphysical explanation, but there are others such as laws that might also seem to compete in undesirable ways. Tiehen contends that Kim's argument cannot get off the ground because his own argument suffers from an exclusion problem: there are two independent grounds for the same state of affairs, namely the truth of physicalism and in addition the truth of the CCP (if they are meant to be distinct truths, e.g. causal closure being a separate law.) would overdetermine the same state of affairs. This state of affairs being that "every physical event has a physical cause."

The reason that I believe Tiehen's critique of Kim is misguided depends on the fact that Kim need not be committed to any metaphysical explanatory exclusion in the first place. His doctrine only applies to competing powers, i.e. events and their relevant properties. The fact that we can rationalise and explain the world in different ways does not always correspond

exactly with the events mentioned (because of the distinction between sense and reference). That is, there are the concrete powers that determine certain states of affairs, but the fact there is a multiplicity of explaining those powers need not correspond with multiplying those powers. For example, consider some motion of an object that follows some path towards a destination. In the right kind of case, we could either explain the situation through Newtonian Mechanics or Lagrangian Mechanics. They make sense of the situation distinctly and with different equations, yet the forces acting on the object will be the same in either explanatory framework.

With the CCP and physicalism, there is no competition in powers between them, only a difference in explaining what are the same powers in the world. The proposition that every physical event has a physical cause can be explained by the CCP or through physicalism, but the latter is a subset of the former. Despite Tiehen's claim, the fact of physicalism does not compete with the fact of the CCP as though they were competing powers; the CCP plus the fact that there are no non-physical properties would be equal to physicalism. Suppose there are three bananas in a box. There is no tension there any more than the proposition "there is a banana in that box" competes with the equally true statement that "there are three bananas in that box;" subsets do not compete with their set because they are a part of the set and in no way distinct from its existence.

Kim is immune to Tiehen's critique because he does not need to subscribe to metaphysical explanatory overdetermination, and in fact to support such a notion seems misguided. Raymont (2003), on the other hand, attempts to appease the tension in the Exclusion Problem by suggesting that, at least in a more Davidsonian account of events as described above, "explanation" is what is playing an important role and since multiple explanations for the same phenomenon are harmless, the problem dissolves. He contends (Raymont, 2003, pp. 234-235) M does not compete for power with P because M and P are both ways of explaining why E* occurred. But the reason we cannot just ignore M as being irrelevant to E*, he argues, is because M is indispensable in our explaining *why* E* occurred. Such a defence revolves around whether M provides any power at all, but it seems clear to me that M is merely another way of explaining the power of P in rational terms. If this is so, M is left without any power and the Exclusion Problem prevails yet again. It is merely that M provides us with a new way of looking at the situation.

3.7 Possible Solution: Proportionality Constraint (Schroder, Yablo)

One way to avoid some of the issues posed by the Exclusion Problem is to question the metaphysics and epistemology of the notion of causation that is at play in the background. The concept of causation that one adopts when discussing any matter will indeed make many presumptions, but generally speaking, the fewer the assumptions (and the less contentious they are) the more acceptable the theory will be. Kim's Exclusion Problem does of course have a commitment to a unique account of causation (as almost all theories will). I take it to be one with an emphasis on properties as powers, and that is what leads to the next state of affairs. Other philosophers impose some restrictions and amendments on what is the nature of causation: namely, that the cause must be *proportional* to the effect. This usually means that an abstract cause or a particular cause need to match with their own kind. In Yablo's sense of "proportionality" the cause must not be too sensitive to particular details in relation to the event that is the effect (Yablo, 1992, pp. 277-279).

Out of competing contenders that are to be decided *the* cause to an effect, Yablo suggests that the most appropriate contender will be that which was the general cause of something, such that if a particular variation of that preceding event did not occur, yet something of the same type (i.e. determinable) did occur, such an event would have still occurred. For example, there is the mental state M which is the decision to notify a friend that one is at the door. One physical determination of M would be the act of ringing the doorbell, call it "P," another might do it via Q, the knocking on the door. Suppose E* is the event whereby the friend is notified. Now, when M is in fact instantiated on a particular occasion as ringing the doorbell, one might ask if P was the complete cause of E* to the *exclusion* of all else. This would be the case if we follow an analogous reasoning to that which is operating in the Exclusion Problem. However, Yablo contends, it would appear that, since E* would have occurred without P, namely via Q, the relevant cause is M because that is what, when kept stable, reliably produces E*.

Such a proportionality constraint may seem intuitive to some, depending on what they think is *important* to the cause, but I believe this is to put too much weight on the psychology of knowledge. By this I mean that it is convenient for the way we order causes in our theories about how the world operates, but convenience is not a substitute for accuracy. Let us inspect the case further; I believe that there are facts about reasoning and the referent reality that must be uncovered. Furthermore, just as with many NRP methods, it attempts to bring in general abstract properties into a situation where clearly the particular tokens in question did all of the

causation. If one fully inspected the nature of the determinate tokens, at no point would they need to postulate some new determinable property to explain why some event occurred.

The intuition behind the proportionality constraint seems to me to be that we can abstract away all of the properties of an event that we deem irrelevant to the effect, insofar as we can imagine some more general conception that applies to the "cause" that would also lead to a qualitatively identical event. I am not convinced by this intuition nor especially what is usually taken by such proponents to be inferred from it, namely that there are "abstract causes" out there in the real world. That is, such philosophers take a cause that we are reasoning about, think of it in a more general way, and then reify the concepts that are spoken about at that level of understanding.

In Yablo's case, he is imagining a higher-order mental cause because we can categorise or rationalise a phenomenon in many ways that all seem to fit under the guise of that more general (mental) cause. But that does not mean that the general idea is itself something real; it has no formal reality. I think it is instead more plausible that what is real is concrete and actual, so that his abstract mental cause is only imaginary or conceptual, yet its "expression" is real. Every time, the expression is a determinate physical state of affairs. It seems to me that whenever there is purported some higher more abstract cause, if we inquire more about its actual existence or instantiation in the world, we will find that the difference between determinable and determinate is that the former is a vague notion and that the more information we have, and when we actually attempt to identify the power at hand, it must always be a determinate existence.

Schroder (2007) also makes use of the proportionality restraint, though his way of cashing out this concept differs from Yablo. With Yablo, the proportionality lies in whether little insignificant details about the concrete cause match with the robustness of the effect. Suppose there is a car crash (Schroder, 2007, pp. 229-231). Schroder argues that once we have identified a more abstract cause about the car crash, namely a collision in general and how that is caused (e.g. slippery roads), this is distinct from the particularities of the causal history of that exact car crash (e.g. a man eating a larger breakfast than normal, delaying him in traffic, eventually leading him to be in the wrong place at the wrong time). What Schroder argues for is that abstract causes can only explain abstract effects and particular causes can only explain particular effects. For example, we cannot explain car crashes in general by looking at the

particular details of the car crash mentioned above where his eating breakfast was relevant *only* to that one particular crash.

Applying this reasoning to the mind, Schroder argues that mental explanations are robust. They explain general actions in a way that physical causes simply cannot because they are too specific and sensitive to irrelevant details. For example, when explaining a man's beliefs, it is vital to cite other mental states on a more broad scale rather than to speak about the specific neuronal formations. So, the argument goes, in a case of mental causation, we should favour the mental property as being a cause rather than the physical because it is more robust and proportional to the effect in question most of the time.

Again, I am dubious about the extent to which abstract notions are being reified as though they are really present in this world rather than them being concepts in the mind where we attempt to see connections and to look at an event in relation to the larger scale. That is, rather than commit to abstract properties, we could perfectly make sense of them as functional properties, but without reifying them. Instead, they would be a conceptual heuristic way of looking at it. This would be in accordance with Kim's "functional property conceptualism" (Tiehen, 2012, p. 226).

For example, should we assume that a "car crash in general" actually exists? Where would we find such a thing? Only as instantiated as particular car crashes. But then we must admit that all we have done is to think of the real particular car crashes and rationalise them in a way where we ignore the particular instantiation because it does not suit that level of analysis we are interested in. In other words, one cannot postulate "abstract causes" as though there are an infinite amount of abstract causes wherever there is an actual cause, simply because we are able to rationalise that situation in many different ways. If there are only concrete instantiations in the world of causes, then the abstract mental cause that Schroder appeals to does not exist.

3.8 Possible Solution: "Multiple Sufficient causes" is Unproblematic (Arnadottir & Crane)

There is an assumption in the Exclusion Problem that multiple sufficient causes for an event is incoherent. Arnadottir & Crane (2013) argue for the harmlessness of abundant causes for an event. They aim to rebut the exclusion argument on the basis of the following two considerations: first, the problem of causal exclusion does not appear to arise unless we postulate costly theories about the ontology of causation, and second, that Kim provides no good

argument that we should be suspicious about the inefficacy of the higher-order property (i.e. a mental property not identical with the physical properties of the base).

Arnadottir and Crane seek to provide us with the intuition that if our ordinary claims about causation are incompatible with the technical usage with Kim uses, then perhaps we should abandon Kim's notion. This is presented by their contention that a hammer, for example, when hitting a clay mould causes its hammer-shaped imprint and here we would apparently say that it was both the hammer's head *and* the whole hammer that were *both* sufficient causes (ibid, p. 11). They consider a response in virtue of Mill's metaphysics of causation, namely, that it is the whole state of the world at some time that provides the real cause and so we could avoid the ostensible notion that there were two sufficient causes in the form of the hammer. Instead there is one cause, the whole state of affairs of the universe. However, Arnadottir and Crane reject this because Kim's causal exclusion argument is not supposed to rely on any particular account of ontology, especially not some eccentric view akin to Mill's.

I believe that Arnadottir and Crane's issue with the Millian response does not do it justice. Here is what I think is the benefit of considering Mill's metaphysics of causation, and it does need not entail anything too exotic. The point is that when it comes to the parts of an object and what we decipher to be "the cause" of an event is somewhat ambiguous; it depends on how specific we want to be in our analysis.

I take it that the force that carries one event on to the next is done on the level of the event taken as a whole, i.e. the state of the whole universe,[59] but objects within those events have *relevant* properties pertaining to which they are *responsible* for the exact nature of that following event. I will often speak about the "relevance" of properties, but what exactly do I mean by this? There are many properties present in events that do not make any difference in any important sense to the event that follows. Those that do make the right kind of difference (depending on the perspective of analysis) will be what I term *relevant*, or in other words, the appropriate *power*.

Under this picture, the whole state of the universe at P20 (say), caused the next event (P21), which includes a mould of clay with the imprint of a hammer in it. Something arbitrary and unrelated such as a fire in another country within event P20 would be included in that whole state of the world, but those properties are not at all the powers we are concerned with and so

[59] After all, it is far more plausible that the world as a whole is what drives the oomph of changing into the next state of the world more so than any finite objects provide the oomph themselves.

we shall not call it a cause (because it was only a cause by coincidence with actual powers concerning the clay mould). Now we must ask, was it only the head of the hammer which has the relevant properties/powers for bringing about the imprint? It would depend on whether or not the handle of the hammer was in fact providing some relevant power and in this case it did, because it provides some force and positioning to the head of the hammer.

I take it that anything which contributed to the head of the hammer's effect (at the moment preceding the event) is thereby intertwined with the cause of the imprint. Given this, what should we label as the "absolute sufficient cause" here? We must analyse causation at a deeper level. Oftentimes the *background conditions* are considered relevant when deciphering what to identify as the cause of an event. I propose a dichotomy whereby when we are deciding what is the cause of a particular part of an event, e.g. the imprint on a piece of clay, there is the *contiguous cause* which concerns the surface of the hammer only, and the sufficient cause would include the handle (as a background condition depending on how one wishes to divide the situation) as well. The reason I separate the two is because the handle did not actually directly impact the clay, and so it might be considered a "background condition" or what I would call an *enabling cause*.

The upshot of this analysis is that there is one sufficient cause here, the whole of the hammer (as well as the person's body that committed the act of swinging the hammer, etc.) rather than it being that the components of the cause are *separately sufficient causes themselves*. This avoids confusion and the impetus of Arnadottir & Crane's argument that there is more than one sufficient cause here as though there would be an analogous problem of an over-abundance of causes characteristic of Kim's exclusion argument.

Now we are in the position to refute Arnadottir & Crane's argument against "two sufficient causes for an event" being problematic. In the case of the hammer and the clay, it is not problematic because this is not a case of two sufficient causes, but one sufficient cause: everything that was relevant to the imprint being there rather than not. If we compare this with the supposition that the mental property instance[60] is allowed to be a sufficient cause as much as the brain property, we can intuit the issue. The brain property instance is both the contiguous (insofar as it is a concrete tangible entity) *and* the enabling cause, so where does this leave the mental property instance? Far from the mental property instance being analogous to the handle

[60] Or set of properties.

of the hammer, it cannot even fulfil that role because it is already entirely taken by the brain. Thus, the mental, qua mental, is excluded after all.

3. 9 Possible Solution: The Constitution Relation (Baker)

Baker (2009) attempts to save genuine mental causation by arguing that we should understand mental properties not as *supervening* or *realised by* the micro-constituent base, but instead as non-reductively *constituted* by it.[61] This is called the "Property-Constitution" (ibid, p. 11) view (PC). There are three main premises:

1. There are mental properties distinct from physical properties.
2. Mental properties depend on (but are not reducible to) physical properties.
3. Mental properties make a causal contribution to what happens.

PC is a distinct relation to pure supervenience (it is a "weaker relation" (ibid, p. 12)) or realisation because it is contingent and context-dependent: a given lower-level property instance can constitute a higher-level property only in suitable "G-favourable circumstances" (ibid.). For example, a hand's rising constitutes a *vote* only in voting-favourable circumstances. The mental depends on the physical through this relation of constitution, not through identity or reduction.

Her argument is that the constituted property instance has *independent causal efficacy* if the following two propositions are true. First, the counterfactual condition: it would have had its effect even if its constituter had been different. Second, it confers powers that its constituter (the base micro-constituents) alone could not. Thus, when Jones's *voting against Smith* (constituted by his hand's rising) causes Smith's anger, that causal power belongs to the constituted property, not merely to the physical movement (ibid, p. 14).

She argues that this allows mental and other "intention-dependent" properties such as *being in debt* or *paying a bill*, to be causally efficacious without violating physical closure. Since every property instance is either identical to or constituted by microphysical instances, the PC view supposedly remains compatible with physical completeness while rejecting Kim's causal-inheritance, causal-realisation, and physical-realisation principles.

[61] This does entail broad supervenience, but this is unimportant.

I believe that there are many problems Baker's position and that she has failed to secure genuine mental causation. According to a sparse ontology, this picture is implausible. On her account, the constituted property instance (say, *voting against Smith*) has causal powers "over and above" its physical constituter (*hand rising*). But on a powers-based metaphysics, causal powers are exhaustively grounded in the intrinsic natures of the fundamental constituents. There can be no new, emergent powers without an ontological addition to the base. Since "constitution" is merely a dependence relation, it cannot generate novel powers ex nihilo. At best, the constituted property redescribes an existing configuration that already possesses the causal capacities required to bring about its effects.

But even setting aside a sparse property conception of ontology, I contend that her view faces three more difficulties. First, her counterfactual condition for independent efficacy, namely, that the higher-order property would still have produced its effect even if its constituter had been different, relies on an overly coarse-grained, type-level notion of causation. When translated into a token framework, the claim loses coherence. Call the constituter P and the constituted higher-order property P*. According to her if P* were there and P were different, the same effect would have occurred. But looking at actual tokens, if P were not there then P* would not be there. There would not be that same constituted instance P* at all, but a numerically distinct one, Q*. The comparison Baker invites is therefore explanatory, not causal.

Second, her appeal to "G-favourable circumstances" as the context in which lower-level properties constitute higher-level ones does not confer any new power. These circumstances are normative and relational, such as social or institutional conventions, rather than intrinsic features of the event (such as being instantiated by the person herself). They depend on other agents' intentional states and therefore cannot alter the causal structure of the physical event itself. From a metaphysical standpoint, they are causally inert; they merely define which outcomes are counted as instances of a higher-level kind.

Third, Baker insists that her model honours the causal closure of the physical, meaning that every physical event has a complete physical cause. Yet if that is the case, then the base property P alone is sufficient to bring about some event E, rendering P* causally redundant. If she denies this sufficiency, she violates closure. If she accepts it, she concedes that the causal work of P* is done entirely by P. Either way, the constituted property performs no additional causal role. Her framework therefore reintroduces epiphenomenalism under another name,

attributing causal significance to the mental only at the level of description rather than metaphysical efficacy.

3.10 Possible Solution: Harmless Mereology and Macroscopic Causation (Melnyk, Marras)

1

In the Exclusion Problem there is the idea that if a property makes no causal contribution at all, then it cannot be termed a (relevant) cause at all. Raymont (2003, p. 230) remarks how this is a somewhat strong view when compared to that of Levine (2001), LePore & Loewer (1987). Those philosophers argue that it might well be that mental properties make no *unique* causal contribution to a series of events, but yet they do still hold some causal efficacy. It is just that the causal efficacy is wholly gained from the more fundamental physical base. In other words, the power of the base reigns supreme but the higher-order mental property is not empty in power; it shares (perhaps in the sense of duplication) the power of the subvenient base. Indeed this "causal inheritance principle" was rejected by the NRP Baker (2009) in the previous section.

The higher-order mental property is a redundant addition which does not serve to save genuine mental causation at all. By holding that a higher-order property instance inherits all of its causal powers from its physical realiser, it entails that a world physically identical to ours but lacking all higher-order properties would unfold in exactly the same way. Such a world would have the same physical events, governed by the same laws, producing the same effects. Hence, the presence or absence of the mental makes no causal difference whatsoever. The principle thus merely redescribes causal closure in hierarchical terms. In terms of powers, the higher-order properties are causally idle.

If the mental property does not contribute anything itself, i.e. that without it the effect that follows would be identical to if it were not there, then it really does not have *any* power at all. One reason would be that such a view advocates for overdetermination; the mental property has the power such that *if* the base were not there and the mental property were to still exist, it would cause an identical state of affairs as that which would be present if the base were there.

Melnyk argues instead that, though the power belongs to the physical base, we are not thereby compelled to excise the mental property as being a cause all together. Rather, if there are some properties *present* in the whole cause, that gives them the right to be termed a cause of the next event. If a mental property is present in this way, then mental causation is genuine after all. Thus, Melnyk argues that the *realisation* relationship of e NRP is analogous to the part-

whole relationship, and since we do not think that there is an exclusion problem of a macroscopic object with its microscopic constitution, we have thereby vindicated the reality of the mental. Marras (2007), for example, argues that the realisation relation equally applies to the part-whole relationship. Many philosophers have argued along these lines.

Kim had made use of the concept of "micro-based" properties:

"A micro-based property is the property of being made up of certain proper parts, each with a certain specified intrinsic physical property, in a certain specific structural configuration. For example, being a water (that is, H20) molecule is a micro-based property just in this sense: it is the property of being composed of two hydrogen atoms and one oxygen atom in a bonding relationship of kind R" (1999, p. 117).

Philosophers such as Noordhof (Kim, 1999) and Block (Kim, 2003) criticised Kim's Exclusion Argument for generalising too much, such that even the properties of biology would compete with chemistry, and then to physics, for example, and so eventually all powers would be "collapsed" down to the lowest level of fundamental physics. Kim (2003) contends that this argument does not work because chemistry properties, for example, do not *supervene* on physical properties. It is a micro-based relation, and something that is macroscopic does not compete with its micro-constituents (including their relations) as they are identical. So chemistry properties macroscopic and reductively identical to physical micro-properties and their relations.

So does that mean Melnyk has saved mental causation by making it macroscopic? Quite the contrary. Kim's point is that the micro-based property's relation to its micro-constituents is an absolute identity, that's why the powers are fine. Chemistry properties have powers *because they are identical with physics properties.* The micro-constituents have the power and are the same thing as the micro-based property. So Melnyk's analogy of realised properties to macroscopic properties does not work. We cannot separate the whole from its parts in the way the non-reductionist wishes to do with mental properties to physical properties. Their whole point is that *realised* properties are distinct from their realisers. On the other hand, micro-based properties (i.e. macroscopic entities) are reductively identical with their micro-constituents.

At this point one may be wondering if my arguments only work if it is true that the only powers in the world come from *fundamental micro-constituents*. This is not the case, for the

structure of the argument works regardless. For example, suppose a mental property M is a macroscopic property instance constituted by micro-constituents $\{p1... pn\}$ and suppose M is not *only* its parts. M would be a macroscopic property of P, a physical token. Then the causal exclusion problem will still apply as a conflict so long as we are considering a phenomenal property instance, call it Q. After all, Melnyk's theory does not have it that a quale as mental token is identical to some physical token *or* functional-role property (See Melnyk, 2018, pp. 483-484), even if it is macroscopic in nature. Instead, the Q token is realised by P. So does E* (the event that is the effect in question) occur because of M or Q, whereby M ≠ Q? The physical causation obviously prevails, because the scientist can determine all the powers from the physical alone, including if it were true that macroscopic ones were not identical with micro-constituents (i.e. $\{p1... pn\}$ & M, with no knowledge of Q).

Earlier NRP such as Fodor (1974) and Putnam (1980) painted this picture differently. To them, the qualitative mental token, Q, is the physical token P's having a higher-order functional property F. So in this case M, the macroscopic property, which is not reducible to its physical micro constituents, is identical to Q. For the sake of argument, let it be granted that M insofar as it is a higher-order property, had some causal power. The problem here is the notion that a quale could be identical with that second-order abstract property.

To say a concrete phenomenal feeling could itself be an abstract relation would be to make a category error. A quale is not an *abstract second-order role* but some *concrete, first-order property instance*; the felt quality itself. Hence, even if M is functional or realised, the phenomenal instance Q cannot be identical to such a second-order property. After all, roles are individuated by the relations they bear to causes and effects, whereas a quale is individuated by its intrinsic phenomenal character. The property of "being in whatever state mediates tissue damage and withdrawal" is abstract and relational, but the *feeling* of pain is concrete and first-order. It is *what it feels like* to instantiate that state, not the role it plays. I discuss this in more depth in the final chapter.

If, instead, the NRP wishes to locate Q as identical with P rather than M, then they have given up their argument about qualia not being reducible to physical properties. So it appears to me that Melnyk's NRP structuring of the situation reasserts itself as superior to the NRP of the pioneers. Furthermore, the same problem goes for if one supposes that chemistry is not reducible to physics, nor that biology is to chemistry. Suppose there is genuine neurobiological

causation as distinct from the laws of physics. Call the neurobiological subvenient base N. Again, is it because of Q that E* occurred, or is it because of N? Because of the CCP, here including neurobiology too, the latter trumps as *the* cause in question, leaving Q once again epiphenomenal. I discuss this kind of issue in more detail in Section 3.11.

2

I insist that one proposition remains convincing: that all the powers in the world are possessed by atoms in certain arrangements. I will therefore argue against Melnyk's argument for the existence of the realised functional properties of objects as having any power or reality aside from the micro-bases (Melnyk, 2003, pp. 129-137).[62] Strictly speaking, Melnyk provides a distinction between what are the realised functional properties, and the properties of the special sciences. However, since he does believe that the two do often coincide, i.e., that the special science properties may in fact be functionally realised properties, this supplementary fact may be ignored. Now, to consider causation, when a hurricane makes contact with a car and moves it at time t31, and was not in contact with the car at t30, in what sense was the "hurricane" the cause of the car's movement? One might say the hurricane was obviously the cause of the car's movement, for the object which caused the car's movement was indeed a hurricane. More sophisticatedly, in a philosophical argument, one might argue that it was *because* of the *hurricane*'s presence that the car moved, and that counterfactually without it, there would not have been a movement from the car.

These statements require a clarification of the words we use and their relationship with how we attribute powers to things. At some level, the hurricane was indeed a real cause, but that is not to assert that it is anything other than its micro-constituents. We might, then, call the "hurricane" as opposed to H(x) (as the set of atoms that make it up) simply a higher-*level of description* rather than higher-*order of reality*. Therefore, when we say that the hurricane was a cause of the car's movement, we are referring only to H(x). Some Functionalists may agree with this account, but the problem is that it then seems to epiphenomenalise the powers of the

[62] It is worth noting that in a footnote, Heil says that, contra Zimmerman (Heil, 2004, p. 233), the higher-levels cannot be appealed to by the non-reductive physicalism in the causal explanation because they appear to be epiphenomenal ontologically speaking. That is, they cannot figure into the causation in the way that philosophers (e.g. Melnyk) argue for, and the fact that there is mention of these properties in explanations does nothing for the real existence of it.

special sciences properties, i.e. whatever properties are added to H(x) that makes it exist as a "hurricane."

Melnyk, however, is not satisfied with this demotion of reality given to the *hurricane* per se. He states his reasoning as relying on the fact that the hurricane under that level of description is something different to H(x). He uses the example of the base of the hurricane being depicted by 'the object as how meteorologists see it.' Following him, when I now speak of a "hurricane" I intend to depict the reality of its special science higher-order property, and when referring to the token object itself which is consistent with a reductionist's account, I call it H(x). Melnyk argues that it is consistent to suppose that the higher-order properties invoked in the special sciences have a causal relevance to a series of affairs in reality, such that it does not conflict (e.g. through overdetermination) with the causal powers of the underlying realising base.

The way Melnyk argues for this claim is by asking us to consider an actual epi-world and how it would be, and then to compare that to the world of realisation physicalism in order to draw out whether they are compatible. In such an epi-world, M2 follows from M1 only by way of coincidence from B1's causing B2; the connection between M1 and B1 being a *fundamental* psycho-physical law. Melnyk compares this to a case of a rash occurring in a person then it being followed by a fever (Melnyk, 2003, p. 132). Supposing that the rash did not cause the fever, there is no real causal connection between the two but instead they share a common cause which is the real cause, i.e. a viral infection. The question is, whether under Retentive realisation physicalism, special science phenomena, in this case Mind, are analogous to the causation involved in the rash and fever.

In order to argue that the epi-world and realisation physicalism world are not alike, Melnyk diagnoses the problem of a lack of causal relevance in the epi-world to lie in the fact that the way that M1 and B1 relate to each other are not as close of a connection as in realisation physicalism. In the epi-world, there is not much claim for M1 to be the cause of M2 because M1 is not so intimately bound to B1 to be relevant to it. However, Melnyk claims, when M1 is *realised* by B1, then M1 can be said to have effects in virtue of B1 in some sense.

Whether or not this picture is plausible depends on Melnyk's analogy with a fertiliser called Kwik-Gro. I do not believe Melnyk succeeds in persuading us of the real power of the higher-order special science properties through this argument. The argument runs as follows. Suppose that Kwik-Gro causes a bed of roses to flourish. Kwik-Gro is composed of an active

ingredient and a filler which has no effect on plants' growth. Suppose further that the active ingredient in the bags of Kwik-Gro change every month amongst various alternatives.

Melnyk thinks it intuitive to say that Kwik-Gro itself is the cause of the roses' flourishing, and it refers to that entity regardless of which active ingredient is chosen or that it is mixed with filler. He then moves from this to the claim that the active ingredient does not pre-empt the filler in being a cause as is the case in the way that B1 pre-empts M1 in the epi-world. This is because the close relationship between the higher-order and lower order property must be close enough, and in this case the relationship is the part-whole (Melnyk, 2003, 136-137). Since the active ingredient and filler are both parts of Kwik-Gro, supposedly the Kwik-Gro qua Kwik-Gro can correctly be thought of as the cause.

Here is why I believe this argument fails. As Bickle states, it is not convincing to suppose that once we learn that Kwik-Gro has a filler, that Kwik-Gro including its filler is the cause of the roses flourishing. Instead, we should assign the causal powers to the *active ingredient only* (Bickle, 2007, p. 263). The filler, though it is a part of Kwik-Gro along with the active ingredient, it is not a *relevant* part. We should not suppose that if A is a part of X, and X causes Y, that A contributed some power to causing Y—it may have been there by coincidence. Therefore, if we examine this case closely, we should renounce the idea that Kwik-Gro was the cause, but namely that its active ingredient was the sole power in affecting the plants.

Similarly, I believe, if we parse the situation properly in a case of causation in a world of realisation physicalism, then we will find that, in identifying which properties are powers and which are like the filler of Kwik-Gro, M1 may be a "part" of B1 but that does not guarantee that it was a reason for B2 to follow. Yet we do have a conflicting issue, namely that, it seems we already do have an explanation as to why M2 follows, and that is because B1 caused B2. To conclude, it does not seem as though Melnyk has given us good enough grounds to vindicate the role that the higher-order property is supposed to have in causing anything to be the case.

3

Next, let us consider the nature of macroscopic properties as causes. Suppose that D1 is the bottom level of atoms and H1 is the hurricane as it exists in our general understanding, looking a certain way and having certain effects. The question is whether, when a hurricane actualises a particular state at a later moment in time, was it at all due to its existence under that level of being and understanding of H1? Or was D1 the cause of D2/H2 to the exclusion of H1 playing any role?

This line of reasoning questions whether Kim's Exclusion argument, having tried to dispel of the powers of supervenient properties, has also done away with the powers of higher-level macroscopic properties all together (See Kim 1997 and Noordhof 1999). As I denounce purely supervenient[63] properties, if I wish to maintain the reality of the special-science causation at all then it must be because they are micro-based in actually potent physical material. Therefore, I shall argue that all of the higher-level special sciences partake in the same micro-basing, e.g. that there is no reality to the sense that psychology supervenes on biology and then to chemistry, but rather that each special science is equally micro-based in physics. This is not to deny that it is useful to talk about Biology supervening on chemistry, for example, because this allows us to understand the phenomenon in terms of what is not so far removed (as is the jump from psychology to physics).

In line with Noordhof's suggestion (Noordhof, 1999, p. 110) that the mind is micro-based, I accept this as being true. Kim himself responds that this is what an Identity Theorist would hold about the mind (Kim, 1999, p. 117). However, it must be noted that the relationship between a macroscopic object to a microscopic object, e.g. from a cell to its atomic constitution, is not the same kind of relationship that occurs between qualia and the brain. This is because the reality of a quale which exists as a property is a different modification of the object's existence, unlike how the purported macroscopic property is supposed to be related to the microscopic properties. This is because, under a deflationary ontological view, the macroscopic property has no intrinsic essence; it depends on how we wish to conceive of the real micro-constituents. In other words, macro-properties do not confer any power.

Melnyk believes that mental properties are functional higher-order properties, but I agree with Chalmers that phenomenal properties do not appear to be functional or structural (Morris, 2014, p. 353). I propose that we understand the phenomenal consciousness of a mind as a type of property of a brain whereby its existence must nomologically be of the macroscopic level (for a mind must be formed by a system of suitably arranged atoms), such that it exists as a mode of expression for that object: the brain. That object, i.e. the brain, has sparse natural properties such as mass, electromagnetic charge, size, etc. all of which determine sufficiently that object's behaviour. The phenomenal property of mind, not being functional, should not be

[63] Here I wish to denote that it is supervenience in the sense that the supervenient property is sufficiently general in its higher-order existence. In another sense, even reductive identities are logically committed to the literal definition of "supervenience" which I adhere to.

included in that collection of real powers, and so I believe that a new kind of concept of a property should be considered. That is, the phenomenal properties hold a special place amongst our ordinary conception of properties for the reason that it does not contribute any powers but is nonetheless a real existence: in virtue of being a concrete property of an object.

For example, Beckermann (1997, pp. 317-319) stresses the real difference between a phenomenal property such as pain with its supposed identical physical state of C-fibre firing. The problem lies in trying to identify pain (phenomenal) with a physical functional state or condition. If we define pain in this way, in the way that the property of spherical is realised by being functionally definable as having property F, then we shall find that we have not captured the significant essence of the pain, i.e. its phenomenal feeling.

3.11 Phenomenal Properties and New Causal Closure Problem

1

One answer to the Exclusion Problem to be in the acceptance of reductive physicalism. Kim suggests reductive physicalism as being the bullet we must bite (barring epiphenomenalism and overdetermination) if we are to swerve past the incoherencies that come with a NRP metaphysic. However, it is not so simple as stating that the mind is identical to the brain and that therefore everything is solved. The most pressing issue, I believe, is how to accommodate what appears to be the "irreducibly psychic properties" of sensations (Smart, 1959, p. 148).

Indeed, Smart admitted that this is the most difficult problem to square with the identity theory of mind. His solution of describing the experience of a yellow-orange after image as:

"*There is something going on which is like what is going on when* I have my eyes open, am awake, and there is an orange illuminated in good light in front of me, that is, when I really see an orange" (ibid, p. 149).

Smart was attempting to paraphrase away the psychic property, what I have been calling qualia, by instead describing it in "topic-neutral" terms (ibid, p. 150). It analyses the quale in functional terms of behaving in such and such ways. Clearly this response does nothing to tackle the actual psychic property in question, namely that there is a qualitative feel to this event of experiencing a sensation. I am not claiming that Smart has not answered *why* there is a qualitative feeling when such and such brain state exists. This is the *explanatory-gap*, which very well may be

unsolvable to human beings. I am critiquing Smart, instead, for ignoring the fact that the experience of qualia is there and cannot be paraphrased away.

It was common for reductive identity theorists to explain phenomena such as colours are secondary qualities of the external objects, rather than properties of the mind perceiving them (e.g. Smart 1959, Place 1956, and Locke 1971). It seems that such theorists are avoiding the problem only by pushing it into another realm; that is, they have ignored the *phenomenal appearance to the mind* and are instead locating it in what is external to the mind. In other words, identity theorists of this sort are not taking qualia seriously.[64]

However, if we do wish to take qualia seriously, we seem to fall into the old issues that we originally wished to avoid. We moved to reductive physicalism because of the closer connection between the mental and the physical, so intimate in fact that they constitute an identity and we are able to see where the power truly resides. If M, a quale, is identical to P, a physical state, we may safely attribute all causal power to P. But to say that the quale is real and it is something not captured by the properties of external objects, we must find a place for it. And if it is

How might one scrutinise the world in a way that accords with the two virtues: a) a reductive physicalism where matter is the basis of existence and through which everything is identical and b) saving the reality of phenomenal experience? I will attempt to provide such a metaphysic by employing the concepts of categoricity and dispositionality. As I have alluded to, there is a strain between on the one hand maintaining the distinctness and therefore reality of the phenomenal state and on the other keeping the tie strong enough to mesh with the CCP.

2

Before we get into the essence of properties generally, I wish to cover the following concern. This thesis advocates for a fundamental sparse conception of which properties exist and which causes are genuine. One might understand this view to be a more restrictive form of the CCP than is commonly supposed. Namely, it implies not just the causal closure of physical events, but the stronger claim of the causal closure of physical *micro-events*. Indeed, in Section 3.10, I

[64] It seems to me that the traditional identity theorists almost fall short of eliminativism. Phenomenal experience is too difficult to fit into their framework and so they deny the visions that we have of the world insofar as they appear to us *in the mind's eye*.

mentioned the problem of causal powers "collapsing" to the lowest level. Call it the Causal Collapse argument. NRP argues for the No-Collapse argument. It goes:

1) Kim's causal exclusion argument leads to mental properties being inefficacious.
2) If Kim's causal exclusion argument is valid, then all levels of properties, e.g. psychological, biological, etc. are inefficacious.
3) But the consequent in (2) is a dubious supposition and should be avoided.
4) Therefore, to avoid the consequent of (2), it must be that there is something wrong with the antecedent of (2), i.e. Kim's causal exclusion argument.

This is an a*rgument from consequences*. On the other hand, physical reductionists view the consequent of the second premise as being a perfectly reasonable, either as the conclusion of Kim's causal exclusion argument, or for separate reasons (e.g. the success of theories from physics seeming all-encompassing). Thus, the third premise has no persuasion at all, and so the conclusion (4) fails to land. Kim puts it more modestly:

"If indeed the supervenience argument [causal exclusion argument] is generalizable [premise (2) of No-Collapse], that only shows that we have a general philosophical problem on hand, and that it is not necessarily a refutation of the argument" (Kim, 2003, p. 165, my square brackets).

Kim argues that the causal exclusion argument would not show that there is no biological causation. Rather it is just the same causation as that derived from fundamental physics. Biological entities are higher-level macroscopic, constituted by entities of micro-physics. Their powers are identical. Of course, NRP does not maintain that the nature of biological properties and physical properties is that the former are mere macroscopic descriptions of the same objects as the latter, since they postulate irreducible higher-order properties and effects of the special science properties.

Why does the reductionist favour the causal powers of the micro-physical as being exclusively genuine? This is a theme that runs through the whole thesis, and I present various arguments. But here let us consider two important ones. Firstly, physics has made very big success in explaining the behaviour of everything in terms of the four fundamental forces (strong, weak, electromagnetic and gravitational) and the standard model of particle physics. Whether it's planets, animals, or particles, the theories based on these frameworks list all the required laws to make sense of all the powers involved.

Second, there is the *asymmetry* of explanatory dependence of macro-micro objects and properties, from which one can reasonably conclude that the latter are the only genuine causes of events. Of course, to say that some theoretical framework W (e.g. only referencing reductive micro-properties) sufficiently explains the behaviour of some event E, does not by itself rule out that there aren't any other relevant powers involved that are described in a distinct theory V (e.g. referencing macro-properties). Otherwise one could claim that W pre-empts V *or vice versa*.

Consider a piston moving, exemplified as events {E1... E5} at moments in time {T1... T5}. Suppose W* is the theoretical framework of statistical mechanics. V* as thermodynamics. Each can sufficiently explain this piston's motion within their own framework. However, when we press the explanations deeper, only the micro-framework is explanatorily self-sufficient. Thermodynamic macro-powers ultimately depend on, and are grounded in, the causal capacities of the micro-particles, whereas the micro-explanation never needs to invoke pressure or entropy to complete its account. Only the micro-level is *explanatorily self-sufficient*. This implies that the non-self-sufficient story was another description of the concrete referents of core powers. For example, "pressure," a term employed in V can be explained by particle collisions, but you never require pressure to explain particle collisions.

3

As I have discussed, there is the standard version of the CCP whereby it does not entail the existence or non-existence of irreducible higher-order properties and causes. There is the micro-causal closure of the physical, which is incompatible with NRP's claim that there are irreducible biological properties that are causally efficacious (from causal inheritance of powers from physics). But there is a third kind of causal closure I wish to present here which I mentioned in Section 3.10. I believe it creates a broader problem for NRP which is true *even if we* grant that there are higher-order causes from special science properties such as biological ones.

This causal closure takes place between *third-person* existents; call it TCCP. By "third-person" I mean the type of event or property that is publicly observable or measurable, i.e., anything whose occurrence can, in principle, be detected, recorded, or tracked by an external observer or instrument, independently of the subject's inner perspective. The domain of third-person existents is causally closed, as evidenced by science.

The CCP is logically consistent with the existence of higher-order properties (such as biological ones and even phenomenal/mental ones), but TCCP restricts higher-order causal candidates to those that are themselves publicly observable. Thus it allows for neurobiological properties, which a neuroscientist can detect, but it cannot admit of first-person modes of being such as phenomenal properties (qualia, etc.) as causal actors. Since non-reductive physicalists accept TCCP as part of their scientific realism, they must also accept that qualia cannot be integrated into this causally closed third-person framework. The Exclusion Problem therefore re-emerges decisively at the level of third-person causation.

3.12 The Nature of Properties

In tune with the standard terminology, I shall distinguish between two fundamental kinds of properties. The distinction is based on *logical* grounds, such that in reality there may be properties whereby both kinds of predicates apply. *Categoricity* concerns those properties which are qualitative and *intrinsic* to the object, regardless (logically) of any powers it might have. *Dispositionality* concerns those properties which make a causal contribution to events that occur; it is in virtue of dispositional properties that anything happens.

Now, it is important to note that these two kinds of properties have long been thought to be mutually exclusive, but Heil (2004) provides good reason to believe that all properties pertain to *both* kinds. One might word it that a property can have two dimensions to it, one its categoricity and the other its dispositionality. Or, instead, one might say that an object has a categorical property, x, and a dispositional property, y, and that in this world the two properties are in fact identical. When I speak of the dispositionality or categoricity of an object rather than property, I mean the object as a bearer of all of its dispositional and categorical properties.

There are many properties which are more obviously both dispositional and categorical, for example the property of sphericity (Heil, 2004, p. 243). It is categorical because it is intrinsic to the object, but at the same time it contributes dispositional powers, e.g. the propensity to roll down a slope. One might subscribe to a theory of properties whereby all properties are *only* dispositional by nature. Such a theory is held in some philosophies of science that all we can know and work with are the dispositional properties of objects: their tendencies to fall into certain categorisations by way of their causes and effects.

As mentioned in Chapter 1, Stoljar (2001) discusses the proposal that science is concerned with “theoretical properties” which concern the way we order and categorise the

world's traits based on cause and effect. These concern dispositional properties because they provide the metaphysical power of change that we see and observe in the world. On the other hand there are the "ontological properties" which are the ontological grounds that lie behind such dispositions; though we cannot observe them, there are plausible a priori reasons to postulate them. To speak of the inner property which lies beneath it, not necessarily observable, appears redundant and better left omitted. To take this view seriously, one might thereby propose a metaphysic of "Dispositionalism" whereby all properties are only dispositional.

Against this, I agree with the intuition that dispositionality is not the whole story about what exists. If there were only dispositions, what would ground them? To keep on postulating further dispositions, the chain would eventually run into some state of affairs. For example, we cannot think of an object that has the dispositionality trait of fragility without it thereby being grounded in some sort of state of the object: namely, some atomic arrangement. For a disposition to hang there, providing powers though without being undergirded, appears to be a strange abstract notion.[65] I agree with Heil's sentiment (as Lowe puts it):

"There must, surely, be more to the nature of any property than that something bearing it would typically behave in certain ways in certain kinds of circumstances - for, after all, what would the behaviour (the "manifestation" of the disposition) consist in, if not the acquisition of certain other properties, in which case how could these too always be purely dispositional? We are left with a picture of the world in which absolutely everything is in a state of potential and nothing is ever in a state of act, because the "manifestation" of any potentiality is always just the acquisition of another potentiality" (Lowe, 2006, p. 474).

Therefore it seems there are intrinsic properties which we might have good justification for supposing that they exist, i.e. categorical properties. And perhaps they might not contribute a power to the object, e.g. epiphenomenal properties. We cannot rule out such properties by stipulation especially if there are good Metaphysical reasons for accepting them. Now, under the form of identity theory that I propose, a quale is an intrinsic kind of property instance of a brain state, more accurately an "aspect" which I explain in the last chapter. But the quale itself does not have any dispositionality; indeed it cannot, for otherwise it would compete with the dispositional properties of the brain as referred to exhaustively by neuroscience down to

[65] This might be similar to how one postulates some sort of substance behind the properties of an object. In other words, the dispute is like that about the "bundle theory of properties" proposed by Hume.

physics.[66] Under the non-reductionist understanding, the mental property enjoys some sort of autonomy; that is what separates it from a reductionist view whereby it is completely subsumed as a mode of the fundamental physical base. As such, I take it that they wish to provide the quale itself with some sort of dispositionality. This is in tune with my discussion earlier about how the non-reductionists wish to save the power of the mental.

3.13 Causal Exclusion Problem vs Russellian Monism

In contrast to this, I take it that the dispositional properties (i.e. those that make a difference to the next event) are exhausted by the fundamentally physical properties. A quale is not a property that concerns dispositions, it is categorical property that is an aspect of the dispositional properties of the brain. Russellian Monism (RM) holds that the categorical properties are what ground the dispositional properties, and the categorical properties are either phenomenal or proto-phenomenal. Howell's argument against RM depends on the fact that it is possible that we could have dispositional properties that are insensitive to the underlying categorical properties which are meant to provide it with that dispositional power. He argues that if we can suppose that the categoricity and dispositionality of a property to come apart in some other world then it is not the categorical property doing any work after all; the dispositional properties are what do all of the causal work (Howell, 2014, pp. 5-7). For example, if redness is the categorical property that grounds the dispositional property of charge, then if in another world redness grounds a different dispositional property such as spin, then the causal series of affairs that follow would depend *only* on the (dispositional) property of spin. Redness does not seem to be important at all, and thus it seems that the categorical properties are excluded by the dispositional properties when it comes to power.

Howell proposes that one way to overcome this is to state that the connection between the categorical property and the dispositional property is a *necessary* one (so redness and charge could not come apart in another world), but that this would remove the uniqueness and purpose of RM such that one might as well adopt physicalism instead (Howell, 2014, p. 15). I do not think one needs to commit to the necessary relationship between categoricity and

[66] Of course, one might suppose that Neuroscience refers to properties beyond the realm of physics (if it is not reducible to it). The point is, however, that these are all nevertheless *physical* in contrast to non-physical mental properties. For simplicity, when I speak about neurobiological properties, I mean it as reductively identical to all the properties of physics, as another way of thinking about those same properties.

dispositionality. All that is required is that in this world, as the example goes, redness grounds charge because of the nature of redness. Sure, if the laws were different, anything goes. But nevertheless we can stress the importance of the properties that here in this world determine and exist as identical to certain other properties with a *nomological* necessity.

Robinson (2015), as well, contends that RM suffers from the causal closure problem, such that human sensations end up being epiphenomenal even on this account. Robinson calls categorical properties in RM "inscrutables." He argues that if RM accepts CCP, and "nonredundancy" (ibid, p. 110): that inscrutables are required to explain consciousness, then sensations must be *arrangements of physical entities* rather than fundamental properties themselves. The relations between the particles will be determined by Physics.

The reason this follows is a third premise, given the "ubiquity" problem (ibid, p. 108). Namely, it cannot be that the sensations *we experience* (as opposed to, for example, basic sensations had by particles or proto-qualia existing inside our brains that *we* do not experience) are the same as the fundamental sensations had by the fundamental particles that constitute our brains. This is because the fundamental particles will *always* have those intrinsic properties as they are essential to their existence, yet there is never a sensation that *we are always* having, even though our brains are constituted the whole time by them. Therefore, the sensations we have and are aware of must be "arrangements of instances of inscrutables" (ibid, p. 108). RM would need to have the arrangement itself as causally relevant.

Yet even granting that such arrangements may have causal powers, Robinson argues that these powers depend only on their *physical structure*, not on their being sensations *of a particular phenomenal kind*. He provides premise "(P5):" the contribution an intrinsic property makes to physical relations is independent of its relations to other entities (ibid, p. 109). Thus, whether an electron's intrinsic nature is "blue" or "red" makes no causal difference to its behaviour. It follows that even if the grounding inscrutables had been different, the behaviour would have remained the same. Therefore, our behaviour does not occur *in virtue of* our sensations' qualitative character. RM is effectively equivalent to epiphenomenalism.

This point is made clearer by Robinson's introduction of a notion called "TIYOS": "Theory of Inscrutables Yielding Our Sensations" (ibid, p. 110). The idea is that it is the third piece of the puzzle. First, physics tells us about the structure, relations, and powers of particulars. Second, imagine we had access to "The List" which is "an exhaustive list of which inscrutables ground which structural relations" (ibid.). These two systems of knowledge would

not yet yield all the facts about sensations because we would still need "laws of combination – statements to the effect that if a certain set of inscrutables, instantiated in elements that stand in certain relations, occurs, then that arrangement is an F sensation [an intelligible human sensation] of ours" (ibid, my square brackets). Call that theory TIYOS. As mentioned earlier, it is in the *arrangement* of inscrutables that causal influence is meant to reside.

The problem with this Robinson argues, is that TIYOS makes no difference to our behaviour. After all, Physics + The List already lay out all the rules and reasons behind our behaviour. No version of TIYOS necessarily follows from Physics + The List, therefore there are multiple different versions of TIYOS that are compatible with our behaviour. And if a different TIYOS could have been consistent with what we do have, it can't have made a difference to the behaviour.

Finally, Robinson suggests that RM could add a caveat to TIYOS in order to save the causal power of sensations. "TIYOSE":

"The laws of combination of inscrutables are essential to them. There is no possible world in which the same arrangement of the bearers of the same inscrutables results in our having sensations different from those we actually have" (ibid, p. 113).

This move would mean that there is a necessary relationship between arrangements of inscrutables and the "F sensations" (the macroscopic sensation we actually experience) they constitute. Notice how this move is similar to what Howell (2014) suggests RM could do, as mentioned earlier in this section. Howell disregards this move for going against the spirit of RM. Robinson makes a different point. Since the point of TIYOSE is to block the claim that "our sensations could have been different yet behaviour remains the same" because the necessary connection between them means that could not happen, an epiphenomenalist could make the same claim adjustment, yet it wouldn't save *in virtue of sensation* causation.

That is to say, suppose an epiphenomenalist holds this claim to be true: "Causal relations between physical events and the sensations they cause are metaphysically necessary" (Robinson, 2015, p. 113). He calls this view "EPI+" (ibid, p. 114). RM with TIYOSE is practically equivalent to EPI+. So as a last bet, Robinson suggests that there may be some left-out sufficient condition to make the sensation's causal power legitimate and to differentiate the view from epiphenomenalism, whereas there is no such hypothetical condition for EPI+. After all, if there

was such a sufficient causal power condition to invoke, that would contradict the very essence of epiphenomenalism. However, he is sceptical that there could be such a condition RM could invoke. After all,

"We have a causal route running from the grounding inscrutables, through structural relations among items in an arrangement of their bearers, to behavior, and we have another route running from those arrangements, through TIYOS, to our F sensations" (ibid, p. 114).

Postulating a necessary condition between TIYOS and causal relations does not show that the first causal route depends on the second. The upshot of this discussion for this thesis is threefold. Firstly, even non-physicalist views of the mind struggle to give a place for genuine powers of mental properties, given the CCP. Secondly, the fact that some theories of mind end up with epiphenomenalist implications does not mean the theory should be thrown away. Instead, it means that there are strong reasons for accepting this seemingly undesirable conclusion of epiphenomenalism. Lastly, the fact that epiphenomenalism can help itself to a necessary connection between sensation and physical matter repels worries about why qualia and brain states correlate so perfectly, even "harmoniously."

3.14 Critical Analysis of Property Distinctions

The previous discussion about categorical and dispositional properties leads us now to a quick schema of the ontology I propose. This will be expounded upon in much more detail in the final chapter. There are those properties which are powers,[67] the dispositional ones that are the concern of scientists. I believe t-properties, as Stoljar calls them, are exhaustively referred to by the sciences. What is going on behind the t-properties? I suggest that o-properties are their bases.[68] They are the categorical properties.

However, I suggest that there is a further distinction to be made here. For example, consider a rock. It has many dispositional properties such as hardness, roughness, and sphericity. All of these property instances have a categorical basis such as the arrangement of its atoms and so on, and whatever further categoricity that we do not know about. Call the

[67] Just as Kim does, for the sake of convenience I speak about properties as though they *are* powers even though it might well be that the event itself has power that is *contributed* by the properties.
[68] One might use the word "ground" here but that seems to imply a distinctness and asymmetric dependency. Whereas I am leaving it open that a categorical property is also dispositional in nature.

dispositional properties of a physical object D-xyz (i.e. xyz etc. are properties that are dispositional). The rock also has many categorical properties that pertain to those dispositional properties mentioned in a full description of it under physics, call them C-xyz. Now, suppose the (conscious) brain's properties are exhaustively captured by D-xyz and C-xyz, where every categorical property is one that pertains to every dispositional property as described Neurobiology.

Heil wishes to state, in a version of an Identity Theory, that C-xyz will include qualia. In other words, the categoricity of the brain includes the phenomenal mind. If this were so, the mind would be the inner aspect of the brain's dispositionality and would indeed be a cause to events therein, just as the categorical properties of a rock, in being identical with properties such as hardness, make a difference to reality. Now when we consider C-xyz in the case of a conscious brain, for some reason beyond our knowledge (i.e. we cannot solve the *explanatory gap*), it includes a phenomenal awareness. If we imagine that same brain but without phenomenal awareness, viz. a brain with D-xyz and a set of properties C-xyz that does not include qualia, it could only exist in a world where the laws of nature were different. When such an arrangement of atoms D-xyz exists in *this* world, in combination with our laws, a phenomenal awareness appears.

My analysis differs from Heil in that I believe C-xyz concerns what I shall call "inanimate categoricity." By "inanimate" I mean lacking any phenomenal features such that a simple celled organism would be called an inanimate object. Thus, when considering an amoeba, its C-xyz properties correspond to every one of its D-xyz chemical properties (because they are identical in Heil's view), where its categoricity is inanimate. Now if we consider a brain that is not conscious, e.g. its host is under general anaesthetic and not dreaming, we might suppose that its categorical properties correspond with all of its dispositional neurobiological properties. The difference between that inanimate brain and one that is awake and perceiving is not *just* a difference in its dispositional properties. That is, for every dispositional property a conscious brain has, there will be a categorical property for each of those neurobiological properties. So where does the quale fit into this? Should we suppose that there are other categorical properties aside from the set of inanimate properties exhausted by D-xyz and its corresponding C-xyz?

Rather than to postulate more properties, e.g. C-xyz.. +n, I believe that the existence of the quale consists of a new *mode* of existence, distinct from mere dispositionality that does not involve phenomenal feels. To be more precise, I take this phenomenal mode to be an "aspect"

of the brain state. Aspects are not strictly properties. I discuss the details and formalise the metaphysics of this in the last chapter. The phenomenal aspect is the same state as the inanimate dispositional and categorical properties of physics, xyz, and is the expression of them in a new way. C-xyz are inner properties, but they are not by themselves phenomenal properties. After all, a rock has a collection of inner categorical properties yet without any phenomenality. Thus, the picture might look like this in the case of a conscious brain: It has D-xyz and C-xyz, and under these laws of nature, when those particular properties are expressed, there appears a phenomenal mode. An unconscious brain has D-xyz & C-xyz, a conscious brain has M:D-xyz & M:C-xyz whereby M is a mode of expression for what would otherwise be inanimate.

Where does all of this lead us? I have argued that the defences provided by NRP are not satisfactory. They depend on equivocations of the term "cause" which is more like a conceptual convenience. Such views imply epiphenomenalism. I conclude this chapter with the contention that we are better off accepting the consequence of epiphenomenalism. The virtues of the accepting epiphenomenalism are that:

1. The causal story of all physical events is preserved.
2. The reality of qualia is preserved.

Chapter 4: Non-Reductive Theory

4.0 Intellectual values in Metaphysical Theorising

Before getting into the details of my own theory of metaphysics, it would do well for any author to disclose their underlying vision of the goal of such theorising. These beliefs are important in both the overt and covert reasons given for favouring one Ontological proposition over another. Generally speaking, I believe that the goal of Metaphysical theorising is to provide a picture of the nature of reality, and in naturalistic Metaphysics this is done by taking seriously the information gathered from the natural sciences. If this is so, the aim of the metaphysician is to form a coherent and justified account, a unified theory of how everything in nature fits together in a way that we can understand it to the best of our ability and methods.

As Ladyman & Ross point out (2007), there are some motivations for choosing between Metaphysical theories that cannot be considered "naturalistic" reasons. In their example, Cartwright is offered as a philosopher who advocates her philosophical theory on the basis that we should prefer the theory which is more "extraordinary," as if for the sake of aesthetic reasons of the poetic sort. Clearly, as Ladyman & Ross highlight, this is hardly a warranted basis for deciding on the best Metaphysical theory. The way I conceive of the activity of Metaphysical theorising, the way in which we should decide amongst competing theories and descriptions, if it is to be naturalistic and therefore respectable, would be to follow certain intellectual values by which we build a Metaphysical framework.

4.1 Parsimony

One of these intellectual values that I think, wherever applicable, deserves strong attention, is the consideration of ontological parsimony. One might charge that even this consideration is aesthetic and not naturalistic, for it is a penchant for "desert landscapes;" (Quine, 1948, p. 23) the emptier ontological landscape the better. A mere aesthetic preference. Unlike with Cartwright's artistic incentives within her theories, I believe that ontological parsimony is an incumbent rational rule to be held. Furthermore, as Sober argues, it is a naturalistic value (Sober, 2009, p. 117). This is because in a good methodology, one does not wish to enter more variables than need be. For example, if one has a satisfactory theory T, and one can then ask if

they should posit p in that theory as a new type of entity without justification, one has thereby added a means by which the truth of the theory is now more at risk of being incorrect.

Assuming we do want our theories to be as accurate as is to the best of our ability, we should only commit to what the evidence says we should postulate, for then we may remain within the epistemic arena of accepting only that ontological scheme in our theory that relies on evidence, justification, and warrant. This may seem like common sense that we should try not to add what is unnecessary and not evidenced, but it would appear that oftentimes metaphysicians overlook this epistemic value for other reasons. One such reason might be that they would rather hold onto another Metaphysical proposition because it is more intuitive or is implied by what is more intuitive. For example, one might wish to commit to the existence of a vitalistic lifeforce even though its postulation introduces a new kind of entity and one which would be less consistent with the evidence we have gathered in our coherent Metaphysical framework. They would do this on the basis that it is so convincing to them that there must be more to inanimate matter for there to arise something as special as life, such that its existence should be postulated in order to align with this.

When I bring to the attention the import of parsimony, I do so with reference to whether a new type of entity should be recognised as existing. I advocate an overarching objective of Metaphysical inquiry which goes beyond what the science itself states (or even is allowed to state within its own subject matter) and provide a rational framework of what exists in our Ontology, and one good way of achieving this goal is to consider parsimony where it is plausible. Indeed, though Ladyman & Ross (2007), and perhaps even the scientists themselves, may not be bothered by inflating their ontology, I contend that it is the metaphysician's job to provide a description of what would be sensible to posit, and what is better left out through appropriate paraphrase. Therefore, in general, my acceptance of some propositions over others will often rely on whether reducing the phenomenon and excising what is not needed is a viable option, such that this option should be adopted.

What we are essentially attempting to do is answer the question, "At what point are we so compelled by the thought that the data can only be explained by postulating some object or property pertaining to it?" More specifically, within this thesis, I suggest that we must prudently decide whether there really is enough evidence to countenance new higher-orders of reality and causation, as though it were not already adequately captured and explained by a reductive identity theory.

There may be something like a spectrum of how much we are persuaded by some proposition on the basis of where it falls in between two opposite scales: on the one hand, how parsimonious it is, and on the other hand, postulating what is in accordance with our intuitive beliefs. Ladyman & Ross (2007) thoroughly argue against the notion of adopting beliefs due to their *intuitiveness*, accusing especially most of the "ordinary language" philosophers of this. Nevertheless, Ladyman & Ross's own vision of how naturalistic philosophising should look does not go down the route of the parsimonious value. To them, wherever science should give us a "simpler" picture, we should eschew from an eager ontological reductionism if it is not explicitly entailed by the scientific theory.

Since I place a high priority on parsimony, I should explain this intuition as something more substantial than a taste for "beauty" even though it is the sort of justification many mathematicians and physicists explicitly appeal to (Nobre & Videira, 2018, p. 249). There are three main reasons. The first, as Russell notes, is probabilistic: every additional entity or kind we posit introduces another point at which our theory could be wrong, so a simpler ontology carries fewer opportunities for error and is therefore safer (Russell, 1912). Second, regarding science. It is our most successful framework for generating theories about the world and it relies heavily on parsimony as a theoretical virtue. If Metaphysics aims for a comparable degree of rigour, then mirroring this constraint is an advantage rather than a mere aesthetic preference.

My final reason, again connected to probability, concerns epistemic humility. Science proceeds from scepticism and commits to ontological posits only when supported by strong evidence. In Metaphysics we lack the benefit of direct empirical or mathematical anchors. Thus, my intuition is that we should be even more cautious. I ask how likely is it that something we simply imagine (an entity or property), find no empirical trace of, and articulate in abstract theoretical terms genuinely corresponds to a feature of the world? Parsimony expresses precisely this humility, with an insistence that ontological commitments should be made sparingly. Therefore it is an underlying theme in this thesis that, for example, higher-order properties, abstract properties, overdetermined causes, etc. are met with suspicion. The concrete world portrayed by science makes complete sense without these.

4.2 "Simplicity" (Ideological Parsimony)

Oftentimes, the concepts of "simplicity" and "parsimony" are conflated together, but I will make distinction between these theoretical virtues. The *simpler* of two competing theories will not

necessarily be the one which has a commitment to a fewer number of entities or types of entities. Indeed, oftentimes the opposite is true.

One might acknowledge that Ptolemy's astronomical theory was less simple than Copernicus's and so it was rationally required that we reject Ptolemy's theory (or at least, this was one reason for it to be dismissed). I mention this because Ladyman & Ross advance a methodology of Metaphysical theorising which respects simplicity over parsimony. This is to favour an overarching view of the scientific data as a whole which fits everything together in a way that it is not unnecessarily *complicated*, rather than being too concerned about whether additional entities or types of entities must be accepted.

Now, the importance of simplicity in theorising is not to be understated. Both in Philosophy, and especially in sciences such as physics, "simplicity" is frequently invoked as an important theoretical virtue, often in tandem with considerations of "beauty." In physics, there are attempts to precisify the notion of simplicity by aligning it with specific practises, such as the "renormalisability" of properties of subatomic particles (Nobre & Videira, 2018, pp. 267-268).[69] In Metaphysical theorising, I do not place as much importance to the issue of simplicity as Ladyman & Ross do, for the reason that our ways of theorising or contemplating about reality may be simplified for the ease of our understanding but do not mirror the universe in virtue of that simplicity. That is, though a "simple" theory is to be preferred to an unnecessarily complicated theory, the universe itself need not obey simple laws or principles; indeed, the universe is very complex.

Given these considerations, how should one devise a Metaphysical system? Though it might be a *simpler* picture to think that whatever it is that physics says is true must be the way that we grant reality to be, I believe that there are some changes to be made to the scientific picture and that we cannot take naively as it is. To do so would be overly naive and hopeful that the practise of physics and its implicit theoretical assumptions are already (almost) perfect. I will argue that there are times when the overarching Metaphysical system of physics should be reconsidered to allow for considerations outside of physics itself, for example, parsimony and logical coherence with other facts we know to be true from rather than directly evidenced from

[69] This is a form of organising the equations for the result of balancing out certain magnitudes, in order to avoid problems such as infinite masses of particles.

the natural sciences. This must be done, I think, even if we must add complications to an otherwise "simple" scientific picture.

4.3 Which Properties do we (and Should we) Attribute to Objects?

It is easy to claim that everything can be accounted for in virtue of a reductive identity theory, but it may be rebutted that much of the richness and utility of our descriptions of reality would be lost. That is, the reason that non-reductionist ontologies introduce new existents or types of existence are in order to fulfil an explanatory role of why it is that objects and properties are natured in the way they are. Supposedly, without the ontology of non-reductive phenomena or relationships, we would be left wanting the truth-maker of what differentiates certain properties. For example, one might propose, if there is no supervenient non-reductive higher order property, then how could we do justice to the fact that we reason about higher-order phenomena in the special sciences such as the term "belief" in Psychology, as though it were its own entity?

I believe that the remedy to the claim that a reductive account is lacking something essential would be to allow for some clear distinctions about the conceptions we have about properties, so that we may separate properties that belong more to the accidental nature of the *conceivers* themselves, rather than those properties being objectively instantiated in the external objects of the world. Too often there is the proclivity to think that if there is some way to order objects in our theories according to some rule, that there must be an objective external mechanism or property at play which directly resembles our concepts of them. Heil terms this dubious tendency the "picture theory" (Heil, 2003).

In opposition to this propensity to locate properties in the objects themselves so much so that we bolster our account of Reality in order to "capture" the properties in question, I argue for a more reductive solution whenever possible. Indeed, it may be useful and important to ascribe an external reality[70] to the properties of a belief *qua* belief entity (rather than being reduced to something more fundamental like neural states). But if we want to be accurate about metaphysics and ignore linguistic conveniences then we might propose a paraphrased ontology

[70] I use the word "external" to denote what is really out there, in virtue of natural kinds. In a sense, a "belief" is not an external thing to the subject but nevertheless if it really does exist then it must be real to all perceivers (whether or not they can actually perceive it). This is in contrast to accidental properties that we might wrongly attribute to objects due to a feature of our own consciousness itself, for example, if we think a stick has the property of being bent due to its being submerged in water, creating an illusion.

of the belief whereby there is no "belief" per se, but there is a belief in virtue of being nothing other than its simpler constituents.

In this thesis there is often an insistence that such convenience about how we might speak or think about objects should not fully determine which properties we ascribe to external reality. I believe that the theoretical value of "simplicity" shares a common incentive with this way of thinking: that is, the suggestion that wherever possible, one should *ground an explanation* of a phenomenon in the object instead of excising it for parsimonious reasons.

4.4 Competitors to Dualism

Dualism ruled out, I will now outline versions of physicalisms as the answer to how the mind fits into the grand ontological scheme of things given the CCP (henceforth understood as a metaphysical assertion rather than an empirical truth that provides evidence for a metaphysical view).

Reductionist positions include the Identity Theory, Behaviourism, Eliminativism, Illusionism etc.[71] Behaviourism is a rather simplistic view of the mind which I will cover here. Though noble in its goal of attempting to straighten out the science of psychology from the unverifiable and dubious psycho-analysis prevalent at the time, it suffered both methodological and philosophical flaws. It was not able to capture the reality of complex states of mind that do not overtly have a behavioural analysis, such as reasoning, imagination, and most devastatingly the nature of language. Methodologically, it failed to reduce these processes to observable behaviour. Clearly, there is much more going on in the brain behind the scenes whereas they treated it as a "black box" which couldn't be known.

With the success and advent of cognitive neuroscience, there *now was* an explanation of what goes in the body, namely the nature and functioning of the brain, which drives behaviour. After Chomsky's (1959) critique of Skinner's behaviourism, it was clear that there is a much richer explanation of the mind beyond what behaviour alone could possibly inform us about. The phenomenon of language was its most notable problem. It could not reasonably explain the acquisition of language through its conceptual framework and Chomsky's theory provided a much better plausible explanation which argued for an internal cognitive structure or

[71] Though technically speaking, only the Identity Theory is "reductionist" from this list. That is because if X reduces to Y, X is still real. Whereas the other three theories mentioned will say X does not exist, but Y does.

"universal grammar" which made better sense. Since children that grow up with a poverty of stimulus as linguistic input, can nevertheless still acquire a complex grammar, this suggests that there is more to the story than mere external reinforcement. Instead, this capacity for language is an ingrained structure of the brain which does a lot of the work. Furthermore, the creativity of language and ability to create new sentences suggests that language is not learned purely through conditioning.

Philosophically, Behaviourism understood (or *defined*, depending on the flavour of Behaviourism) mental states as the "disposition to act" in a certain way. This was a useful manoeuvre to expand the repertoire of concepts they could employ beyond just observed behaviour. There are many problems with this type of analysis, however, most importantly that it is very insufficient in capturing a wide array of mental states that are inner states of the mind, such as sensations. Another problem is that "dispositions" are abstract; they don't explain why or how the disposition manifests in token particulars.

Putnam (1980, pp. 24-36) raised two substantial criticisms against Behaviourism regarding its inability to capture the essence of mental states through behavioural dispositions. First there is the issue of the fact that such dispositions are context-sensitive and potentially unbounded in number. The same behaviour can mean different things in different contexts, and conversely, the same mental state can lead to different behaviours depending on the context, so they cannot be identical. For example, the belief that "it is raining outside" (call it P) could have its subject bearer disposed to bring an umbrella outside, but maybe not, if they enjoy getting wet, and a myriad of other possible factors and desires in tandem that would determine which behaviour would prevail. Furthermore, different people will all respond differently despite having *the same belief*.

The second attack on Behaviourism came from Putnam's thought-experiment about "Super-Spartans." Imagine a group of Spartans who were trained so rigorously to manage their bodies that even if they were cut with a knife, though they may experience intense pain, they would not react with *any* overt behaviour such as wincing or groaning or moving away. They are constituted such that, even at some later time, they would not behave such that they want to avoid being cut. Clearly, then, this is impossible in this world but suppose its possibility in another world. Further, the supposition is that the Spartans still feel pain because of their internal states reacting, whether as raised heartbeat or increased adrenaline. The plausibility

of this scenario proves that “pain” is not just dispositions to behave, it essentially is the inputs and outputs that go on within the body.

Nevertheless, I believe that this kind of argument can levied back at Putnam. His argument showed that behaviour is not needed to capture pain, but functional-physiological states are. I present a thought-experiment that attempts to show that functional-physiological states are also not needed, yet pain is still there. Imagine a group of Super-Samurais with a rare genetic disorder that interferes with their stress responses etc. Just like the Super-Spartans, when cut with a knife, they do not wince or groan. But nor do they have any autonomic response at all: no heart rate increase nor hormonal response, etc. Everything was as it was, yet their still experience the quale of pain. Therefore the internal bodily reactions are not what defines pain, but the phenomenal experience is. I expound upon this kind of thought in the last chapter where I argue that the quale of pain is not itself dispositional.

Regardless, Functionalism as a theory was eventually developed and came into the fore as a superior alternative to Behaviourism. Though structurally similar to Behaviourism insofar as it also concerns itself with dispositions, instead of just behaviour, it focuses on inputs and outputs more generally. The inputs were often environmental stimuli, and outputs were often behaviours, but they also included neural events, hormonal responses, etc. This theory meshed well with neuroscience and the reality of mental states, their internal nature, and so on. I discuss this theory in more depth later in this chapter.

Eliminativism shares similar problems with Behaviourism by denying the qualities of consciousness, at least in terms of the reality of phenomenal experiences qua phenomenal. For example, there is undoubtedly a subjective experience to tasting garlic, in a way that appears to our mind’s eye. Yet the eliminativists will say we are mistaken in using such language. The illusionist similarly agrees. To them, although it seems like we have private qualitative experiences, this is illusory, because in fact there are only brain states and cognitive functions. As such “qualia” are erroneous postulations. Nevertheless, eliminativism and illusionism are at least superior to Behaviourism in having neurobiology at their disposal.

Such denials about taking phenomenal experience seriously are certainly unpalatable. The Identity Theory maintains the reality of the conscious experience, yet by naturalising its existence to something real and legitimate, i.e. physical states. To go one step further in fortifying the reality of mind would be to reject its reducibility to brain states. This brings us to the non-reductive theories which place a higher order of existence to these mental states,

stating they are not *solely* the physical state in which they inhere. That is to say, they exist above the base level.

Suppose we have a mental state, e.g. a felt thirst (rather than conceiving this thirst as a behavioural or functional concept alone) as M1[72] at time t1. At t1 there is also a brain state of the person, call it B1. What is the relationship between M1 and B1? The non-reductionists may appeal to realisation or supervenience.[73] Though some philosophers use the term "realisation" as though it were compatible with the realiser being *identical* to the realised[74] (see e.g. Melnyk, 2006, p. 130), I adopt Polger & Shapiro's definition (Polger & Shapiro, 2016, pp. 18-19) whereby there is an important distinction between the meaning of "Realisation" and "Identity." The former is a necessarily non-reductive notion of how two properties (or sets of properties) relate to each other. Thus, if M1 is realised by B1, it can nevertheless be its own existing property which can causally interact with other things in the universe (as Shoemaker would have it). According to this line of thought, not only does M1 exist as something separate and "above" B1, but it has powers of its own which do not pertain to B1 itself (that is, B1's powers do not extend to the powers possessed by M1). A reductive identity on the other hand, would not allow for powers other than what is identical to B1 and its powers.

4.5 Functionalism

Kim notes that early on in Putnam's postulation of Functionalism (Kim, 2010, p. 102), Putnam highlights the *general nature* of certain states (most notably computational or mental states) and their lack of mention or regard for the particular physical instantiations through which they may exist. He states:

"In particular the 'logical description' of a Turing machine does not include any specification of the physical nature of those 'states' (a Turing machine's 'internal states') ... In other words, a

[72] When I speak of "M" without a number, I mean "Mind."
[73] The relation of "instantiation" also deserves a mention, but this, to me, sounds more appropriate to use in identity relations rather than what is supposed to keep an air of distinction between the higher and lower level properties. For example, a mental state that is instantiated by a brain state may very well just be nothing but that brain state. Furthermore, the term is often used to describe how macrophysical properties relate to microphysical properties—again, a relationship of mere constitution.
[74] For example, Shoemaker (2007, p.2) states that the occurrence of realised states is *nothing over and above* the occurrence of their realisers.

given 'Turing machine' is an abstract machine which may be physically realised in an almost infinite number of ways" (Putnam, 1960).

Functionalism relies on a conception of physical systems which stresses their essential characteristics as being something beyond the mere contingencies and unimportant arbitrary constitutions of certain objects, instead attending to features we can learn and think about in general abstract ways. This is why Putnam gives precedence to the "logical description" of a Turing Machine and how it functions, rather than giving weight to the particular physical realisers that may happen *to give rise* to those functions. In other words, to Putnam, functional states are higher-order properties.

First, it is worth asking at this point whether the passage quoted from Putnam (1960) is supposed to have epistemological or ontological implications. It seems that Putnam's reference to "logical *descriptions*" not including any specification of physical natures is to say that in our talk of such affairs, there need not be any mention of particular physical constitutions. This is not necessarily a claim as to the higher orders of *existence* of such functional properties, but only in their conceptual autonomy.

This may be compared to how we might speak about the nature of bricks without reference to any particular shape or colour that a brick actually holds. Indeed, builders will speak about the integrity and usefulness of bricks without any mention of their instantiated colours. I believe that this *epistemic understanding* of Functionalism is vital, for an Identity Theorist does not need to commit to the *conceptual reduction* of any two disciplines. Rather, they should be seen as remedying the problem of naturalistic metaphysics by declaring a unified ontology and causal framework. Indeed, a story will need to be told about how the ontological relationship between disciplines would look, and this is what I plan to do through an analysis of properties and objects.

Many functionalists, on the other hand, take these epistemological claims one step further by reifying the existence of the abstract. At first, the Functionalist claims that abstract concepts (for example, the functional property of 'waving a limb') are like "blueprints" (Kim, 2010, p. 103) that come into existence through an actual concrete object. This is similar to how one might form different designs of houses, and so in some sense they exist in abstract (as an idea, to be exact. More on this later) and it becomes concretely actualised once a house is built in accordance with that designed form. Later on, however, the Functionalists began speaking of *properties* being "realised" by other properties. It is this last statement which holds a great

ontological weight and is a substantive concern of this essay, and especially relating to multiple realisability.

It was a natural direction for Functionalism to move from the abstract understanding of an object's causal profile to the postulation of properties corresponding with them. This ontological inference need not be employed, however. I characterise Functionalism itself as a doctrine whereby the mind is best understood as a functional object like a computer. This is not to commit to a metaphysical theory and therefore there is no bearing on the issue of whether "functional properties" are anything but identical to micro-level base properties of physics. The natural progression of Functionalism to take the very essence of mind to be a higher-order abstract emergent property is congenial with the NRP appeal to realised properties.

4.6 "Properties" in Functionalism

A functional property F is a property that exists in virtue of some condition C being instantiate[75] in some state of affairs, e.g. an object behaving in a certain way. For example, the functional property of opening locks can be predicated of a key, such that the key has F. F is considered a "role" property because it identifies a certain role of behaviour performed by the object and is quite consistent with abundant properties. In this sense, it is easy to be assigned a role property, yet nevertheless ontological claims are drawn from it. It is assumed by the non-reductionists that F itself plays a causal role. Consider a heart whose function it is to pump blood around the body of an organism. Call this property R. We might then say that R becomes a supervening realised property of the base, call it G.

I think this is the wrong way to look at the situation and role of the role properties. Indeed, we may *conceive* of levels of reality, such as G with its higher-level property of R, but we should not isolate R as being causally relevant for then we overlook the real cause, which is G. Atoms can behave as the way R reputedly bestows upon them, without there ever *existing* anything like R as a real property (called an "innocuous addition" by Morris, 2014, p. 360). The question then becomes, how is it that R, not having any reality to itself as an existing property, can map onto the actual pre-existing properties of atoms so well that it is as though our understanding of the property "pumping blood" *is* referring to something real, an entity to be quantified over in Quine's sense? It seems to me that a functional property, insofar as it is

[75] I use the word "instantiate" for this relationship compared with "realised" because I commit to a strict definition of the latter.

abstract, should not be considered one of the "sparse" real properties, but that they merely conceptually picks out these properties. I will discuss this issue in more detail the second part of the thesis when arguing for a restricted view of property instances.

For now, let us ask why we may wish to have the addition of a realised functional property over and above its atomic base. Melnyk argues for it on the grounds of how well the scientific evidence points to it as well as its role in explanation, such that it factors into causation as well (more on this later). Leaving that aside for now, I believe that much of the force behind ascribing an ontological weight to the functional properties themselves stems from the concept of multiple realisation. There is thought to be something which is exactly the same in two instances of objects expressing what is the same function/property, and so in order to satisfy the logic of this sameness an entity/property is postulated to provide the identity. In other words, if objects x and y both fulfil condition C, thereby both instantiating property F, object x and y can be both said to participate in an identical existence present in both objects.

To appeal to such a notion, I believe, is misguided for the following reason. Suppose x is the heart of a parrot, and y the heart of a lizard. Both objects serve the same condition, C, of pumping blood around the body, and so it is necessarily entailed (Melnyk, 2006, p. 129) they both have the property of F, the property of pumping blood.[76] I submit that these two hearts have a lot of natural properties in common, i.e. in their similarly shaped structures, and chemical constitutions. There is nothing more to these natural kinds of the objects on the most fundamental level of physics, and so the retentive realisation physicalist posits the higher-order in order to provide some sort of cohesion within the reality of the way that both objects behave.

Essentially, then, the argument for such higher-order properties, in addition to their explanatory/causal virtues, seems to rest on a desire to ground in the external world a realness to the sameness of two objects. This is contrary to reductionists who would rather describe the situation without reference to anything over and above the objects and their first-order properties. Instead, there is merely a qualitative similarity amongst the various kinds of objects (See Heil, 2003).

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[76] It might be contested that I cannot declare with confidence that these two different kinds of hearts do fulfil the criterion of meeting a condition, C, but that they might have two different functional properties, as F and E. However, Melnyk is committed to any proliferation of higher-order functional properties, including even gerrymandered ones (Melnyk, 2003, pp. 44-48). Therefore, if it is true that both hearts follow *any* conceived notion of a functional property, surely they must at least both follow the function of pumping blood.

I do not take realised functional properties to be natural kinds in the strict sense, since they are not based on the sparse properties of an object that can be evidenced to exist. We can only have evidence for how an object behaves; it then requires another step to postulate a new entity in order to exist once some criterion is satisfied. We can explain the situation in virtue of C, without any need to postulate some distinct property called F. Therefore, on the level of a complex function apparent in such disparate material objects as a heart of two distinct species, I take it that there is no genuine resemblance enough to postulate a new property. To do so would be misguided in that it follows the Picture Theory (Lowe, 2006, p. 467) which takes *positing properties* at face value for granted. Such real resemblances must only be in having the exact same properties, and this can only be so in virtue of their sparse properties.

As Lowe (2006, p.468) puts it, in agreement with, and describing Heil's position:

"Moreover, if we do regard pain as a higher-level property, we seem to be encumbered by the difficulty of explaining how it can be causally efficacious, given that all the relevant causal work that needs to be done is already done by the so-called lower-level properties. Better, then, to abandon talk of "levels" altogether, conceived as levels of reality, as opposed to levels of description."

Furthermore, though multiple realisability and functionalism go hand in hand, and are supposed to provide some abstract causal power, it appears to come out as empty. As Lyons (2006, p. 774) puts it (regarding computational functionalism):

"... epiphenomenalism is already inherent in the basic statement of functionalism. The standard rallying slogan of functionalists is that ''it is what it is because it does what it does.'' The *because* relation, however, is asymmetric. If x is true because y is true, then it cannot be the case that y is true because x is true. Similarly, if x obtains in virtue of y's obtaining, then it is false that y obtains in virtue of x's obtaining."

4.7 Functionality of the Mind and Phenomenality

How then should the mind be characterized? I think that non-phenomenal mental states are sufficiently characterised by their functional roles (as configurations of first-order properties, not as a higher-order property itself), defined by proprietary computational inputs and outputs

(by its instantiation as a brain). That is, neurobiology will never need to locate the causal influences occurring in the brain as arising from anything other than the biological substrate of brain tissue.

The difficulty arises in explaining qualia's relationship to this. Suppose there is a token brain, B(x), where "x" is the set of all properties, e.g. mass, shape, electric charge of that brain at some time. If that brain is in a man who is awake, seeing and hearing his environment, then call his conscious mind[77] M(y) where "y" is the set of all properties, e.g. the qualia of redness or taste of honey, of that phenomenal object: mind, at some time. Now, if Functionalism is true, then the divide between B(x) and M(y) is not significant at all, for in fact, they are the same. That is, M(y) is B(x) *because* M(y) equally arises from the functionality of B(x), call it F(x), such that qualia is functionally reducible.

Though I espouse a reductive theory about what are the causal powers in the world, I eschew this line of thought because I do not think qualia should be thought of in functional terms at all. There is a sense in which most of all objects or words are defined by their functionality, in that they are "something that does such and such" since a thing's essence is its causal nature. But the essence of a phenomenal experience is not what it does but in it how it feels, categorically.

If qualia cannot be captured by the ontology of functionality, then whence does it arise and what is its basis in reality? In the final chapter, I shall expatiate the type of "identity" that I advocate[78], but what is significant to note is that the functionality of Bx alone is enough to warrant M(y) to exist as identical to it at that time. I, on the other hand, believe that the actual aetiology of the objects at hand is also essential and this includes its material; *functionality* is not by itself enough because other properties such as chemical constitution are necessary for phenomenality to occur.

Thus, whenever we speak about a phenomenal property, we are not speaking of that logical functional entity that is functionally defined (both ontologically and explanatorily). Instead, we are speaking about a phenomenal property that is identical to the material constitution of something which is in fact a computational object. The problem with

[77] It is important that I am here referring to the *conscious* mind, because any unconscious parts of the mind are captured completely by the functional definition; they are nothing special to be described aside from an inanimate brain.

[78] A type of dual-aspect monism, but with an epiphenomenal twist.

Functionalism is that it ignores the true necessary conditions for the generation of qualia. These considerations lead me to the next section on the relationship between objects and properties more generally. I will discuss the notion of "supervenience" briefly as a basis for many non-reductive accounts of mental properties.

4.8 Supervenience

"Supervenience" is a rather complicated notion which sometimes relies heavily on counterfactuals and possible worlds, but I will treat it as meaning 'if Y supervenes on X, then there cannot be a difference in Y unless there is a difference in X.' Furthermore, that is, in any world that is a physical duplicate of this world and X exists, then Y must exist as supervening on X. This is essentially to state that Y's existence is completely determined by the nature of X and its powers. Supervenience is consistent both with Y being an entity (property, object, state, etc.) which exists alongside as dependent on X, and also consistent with Y being identical to X. The former relation is the case with non-reductive theories whilst the latter concerns the Identity Theory. What the theory of realisation and supervenience allow us to do, then, is to appeal to certain types of beings which exist above other levels of being, the latter usually being microphysical properties. This is valuable because if one wishes to maintain the truth of the reality of genuine mental causation and CCP together, then they will need a physicalist story of mental causation that nevertheless does not relegate them to mere base level of physical atoms.[79]

The importance of supervenience lies in its apparent ability to be committed to a minimal sort of physicalism by appealing to a necessary dependence relation, whilst at the same time not committing to full-on reductionism. Kim argues (2011) that a theory committed to supervenience is necessarily thereby committed to the CCP and that it is a fair way of characterising physicalism, though when the details of mental causation are ironed out, it appears that there cannot be any genuine mental causation as the non-reductionist claims. Kim is making the case that, unlike what some philosophers have accepted, emergentism is not compatible with the Supervenience Thesis. Kim's argument assumes that downwards causation is not possible in the picture of causation, which is much disputed.

[79] Of course, the reductionist does not wish to cohere RGM with CCP. They maintain CCP and renounce any *genuine mental causation*, in favour of the causation of the base level of Physical atoms.

Morris (2014) brings to attention how, if we are to exclude emergentism from being compatible with the Supervenience thesis, then our understanding of the latter ends up boiling down to what is supposed to be a different theory altogether, i.e. the realisation thesis or the Identity thesis. Morris contends that we cannot postulate "supervenience" as being sufficient for physicalism because it would be compatible with strong emergent properties (the existence of which would run counter to physicalism) supervening on the physical. In response, one might postulate the "polluted base" argument, whereby, if emergentism is true, then there cannot be a physicalist supervenience base in the first place because emergentism entails that the subvenient base has some non-physical elements. This is so, according to the base-pollution argument, because if the base has a disposition to necessarily give rise to non-physical stuff, then it must contain a non-physical property to begin with.

The problem then arises: doesn't the base pollution problem apply also to the supervenience relationship itself? What is it that prevents the subvenient base from being non-physical, when non-reductive physicalists are fine with postulating higher-order abstract non-physical functional properties? Sure, such non-physical properties supervene on the physical, but why does that not entail that the base has some non-physical element? Such a fact would be a phenomenon that Supervenience physicalism is supposed to reject.

Morris argues that if one wants to save supervenience from the pitfalls of emergentism's reputed incompatibility with physicalism, they must first furnish the theory of Supervenience Physicalism with additional premises. He offers Howell's suggestion that so long as the supervenient properties are not "substantially new" then the subvenient base is not thereby polluted (Morris, 2014, pp. 356-357). How might this look? One way would be if the relationship between the supervenient property and physical base were tighter. For example, suppose M supervenes on P. If one adopts the *realisation* relation, M is conceptually necessitated by P. And Morris claims (ibid, pp. 359-360) that it is therefore hard to see how M could truly be novel with respect to P. Furthermore, "it is implausible to think that instances of physically realised functional properties can have causal powers that go beyond those of physical realisers" (ibid.).

Another way the relation between M and P could be close enough to avoid M being truly novel is the identity relation. But this is of course too reductive, and the purpose of Supervenience Physicalism was to provide a less demanding theory about the mind-body relation. So in conclusion, Supervenience Physicalism on its own cannot reject novel properties of the kind emergentism postulates unless it falls back to a distinct theory, Realisation

Physicalism or the Identity Theory of mind. I agree with this thought. So let us move onto the *realisation* relation.

4.9 Realisation

Many current formulations of physicalism rely on higher-order properties and concepts, reifying functional role properties. This is the case in realisation physicalism, an understanding of physicalism whereby the *realisation* relationship does some metaphysical work. For this reason I believe it is worth inspecting from an ontological vantage point. It would seem that the physicalist has a more restrictive ontology than the Dualist, but there are many questions to be asked about the details that need to be cashed out in espousing realisation in physicalism. In this section I will attempt to briefly address the nature of this relation of realisation and later discuss its pertinence to the CCP and nature of physical causation more generally.

We should first take note that it is not necessarily the case that a non-reductive realisation relation of mind-property to brain-property will be one where the supervenient mental property is non-physical. In Melnyk's retentive realisation physicalism, he takes the mental properties to nevertheless be physical because it meets the disjunct of his criterion for what makes something physical: i.e. if it is realised by something physical. At other times, Melnyk speaks of realisation physicalism as admitting of non-physical properties so long as they follow certain criteria (Melnyk, 2006, pp. 132-133). This would entail that, even under realisation physicalism, there can exist non-physical properties but they are permissible because of their ontological reliance on the physical (but might be called "physical" under some broader conception). As such, under this formulation, it would not be correct to state that "all that exists is physical" as it would be true in a reductive physicalism.

I shall begin with an examination of Melnyk's succinct description of what physicalism should mean. It is that:

a) "Every causal or contingent token of any type - whether an object, property-instance, or event - is either a token of a physical type or
b) A physically realised token of a functional type" (Melnyk, 2006, p. 131).

What is of most interest to the goal of this thesis is the second disjunct, for there is much to be unpacked. To start, it will do well to iron out some details about realisation and physicalism. In

Melnyk's account of physicalism as an ontological framework, it is said that there exists a thing that is not a) a token of a physical type, because it is b) something that exists as a *realised* token (and (a)'s property reference is not identical with (b)'s reference). I think it is important to inspect the purported existence of (b)'s reference to test for two reasons. First it should be inquired whether a realised token, the "realised" predicate depicting a real property of the token, can be explained and described without it, e.g. through paraphrase. That way, we can avoid commitment to its ontological posit, where, generally if this can be done in a rational way consistent with our amassed evidence, it is to be preferred.

Second, what sort of an existence is it that a realised property holds? If it is the case, as I will understand it through Melnyk, that realised properties are "functional" in essence, rather than physical in essence as the way that physics describes, then its existence is not identical with the object which takes on a certain role R or condition C. Therefore, it is not clear how the metaphysical relationship between a fundamental token base and its realised property is supposed to look. Is the realised property emergent and in some sense distinct from the base? The latter predicate must be true of the relationship, for otherwise there would be no reason to mention an ontological relationship called "realisation."

We may therefore derive that these functional entities, whatever they are, should be included in our description of the ontology of causation, and indeed Melnyk says as much (as discussed in that section). However, Melnyk is not convinced by the following problem: if condition C is reified as something beyond the object which falls under that role, then there are two candidates for what the cause of the effect would be. Is the effect caused by the realiser's first order properties, the realisee's properties, or the two in conjunction? To be serious about Ontology, I believe that it must be that it is the object itself with its properties in the base level that has all of the causal powers, and there is no formal existence or power to the functional property.

4.10 The Problem with Realisation

I do not propose that we abandon the concept of realisation altogether, for it may be useful to retain a non-committal reading of it in our language and descriptions of nature, so long as one does not thereby take the additional step in adopting its Ontological reading. Such a reading would take the proposition that a car behaves in a certain functional way such that it applies to our understanding of other cars that are functionally similar, and that therefore this is in virtue

of the reified functional realised property, F. If we maintain that F is a nominal description of the particular microstructures of cars in general, subsumed within a certain epistemic framework or inquiry, then we have kept our ontology as modest and reasonable.

I argue against the Ontological reading of realisation because I believe that it gets the order of explanation the wrong way around. Ideally, when we want to explain some phenomenon, for example, the behaviour of some object and its interaction with other objects, then we would attempt to do this in a way that is sensitive to the natural properties of the objects in question. So, for example, a sleeping pill's effects are studied on the basis of its chemical formula and how that reacts with the human body. Therefore, there is primacy to 1) the chemical composition such that it 2) explains its functional relationships with human bodies. Where I believe the realisation and Functionalist theorists alike are mistaken is that they upend this explanatory framework by giving too much emphasis on (2) such that it becomes the *explanans* rather than the explanandum.

I take this case to be analogous to explaining the effect the sleeping pills by reference to their "dormative power" when in fact, the dormative power is exactly the property or phenomenon that we are trying to explain, in virtue of identifying the real natural properties that underlie it. If anything, the dormative power is just a term for what is the chemical microstructure, so we should not posit it to exist, especially not as an explanation for causal relations. The concept of realisation, then, is a *derivative* notion that is parasitic on the actual base powers and reality of atoms. I suggest that realisation, if we are to keep such talk at all, should be conceived of as a conceptual tool for understanding and ordering information. That is, it is convenient for us to utter sentences like "these tools work in similar ways because they possess the functional property, F, of being a corkscrew" but it must be admitted that there are no powers to it insofar as it has this nominal property of F. As such, realisation is not something metaphysically real to be taken as an ontological explanation.[80]

4.11 Multiple Realisability

One of the main problems levelled against the reductionist (e.g. type-identity) is that it cannot account for the fact that higher-order properties can be instantiated by multiple kinds of constitutions. For example, they would argue that the property "pain" is the same whether or

[80] I take it that if X explains Y then X is ontologically prior to Y.

not it is instantiated by a human or octopus. I believe this is a mistaken picture. Instead of committing to this, we could instead argue that "pain" is a concept that we apply both to the human and octopus but that they are not actually numerically identical properties, and so there are two different kinds of pains. Thus, as Lewis (1966) would call it, "pain" is variably realised in both places. This has no ontological commitment to a higher-order property as multiple realisability is. The picture would look something like this:

A. F (concept)	B. F (determinable)
↑ (process of psychological abstraction)	↓ (metaphysical instantiation)
$F_1 ... F_n$	$F_1 ... F_n$

According to (A), there first (ontologically) exist particular objects out there (i.e. mind-independently) in the world. No abstract functional properties are yet postulated. We then formulate a general concept which captures what is most important and constant amongst the varying accidental differences, just as Locke proposed is the nature of the general word or abstract idea. In some cases F might be a conventional property such as the predicate "silly" and sometimes F is a natural kind such as "gaseous." Both times, F is formed in the same way, however the difference is that there is an identity relation between F and F_i in the case of natural kinds. I will discuss this in detail. On the other hand, (B) asserts that there is some distinct property in nature that exists aside from the instantiations.

In my view, many confusions arise from looking at the picture in the wrong order. Non-reductionists, championing multiple-realisability, begin with the assumption that mental properties are natural kinds or universals. From there, they attempt to explain the behaviour of physical mechanisms, e.g. that they instantiate the abstract universal property of pain. I believe, instead, that we should begin our analysis from the bottom and from what we are more assured, namely that the physical mechanism acts in a certain way according to established laws of physics on the micro-level that need not invoke anything more abstract. In doing so, I believe that the natural kinds of the physical mechanisms rule out the supposed natural kinds of mental properties: the latter are accidental properties. What matters is from where we begin our analysis and what we take to be a more fundamental premise.

Bearing this in mind, I proffer the following hypotheses: (a) purely categorical properties,

i.e. qualia, are not natural kinds (since they have no dispositional power). (b) Second, "functional kinds" are not natural kinds. (c) Furthermore, qualia are not functional kinds because they are impotent. Concerning the first premise (a), consider the property of sweetness in its categorical essence. Namely, not as something functional or chemical, but as *how it tastes*. First, this quale is not a simple property, i.e. it is a composite of many different types of chemicals. Second, it is not a natural kind because it is not defined by its properties of chemistry or physics. Sugar and artificial sweeteners differ greatly in composition and even in their functionality within digestion, yet both can be labelled as having the categoricity of sweetness. In my view, this is because of a likening of the phenomenon of felt sweetness, judged by humans rather than latching an objective property, such that it is not the real self-same sweetness property being present in glucose and in glycoside, say.

Regarding the premise about (b), functional kinds are not natural kinds. They are merely similar functions. But "similar" here is not something strict. It does not refer to a numerical identity at all, unlike with universals such as fields and forces. This is because there is only a slight resemblance of causal powers within these so-called types, based on if they perform a function similarly enough for us to conveniently group them as such. This applies to artifacts such as whether something is a corkscrew (Polger, 2008) or not, or even something natural such as the predicate "mammalian."

The problem with such predicates are that they capture too many accidents in their denotation; rather than natural *kinds*, I think it is more appropriate to name them natural *terms*. I suppose that there is something like a spectrum of natural kinds, starting from the exact clear-cut types such as "having a covalent bond" to what is a much broader and therefore vaguer characteristic such as "being an animal" which covers a very wide range of things and does not inform us much about what to expect or how it is defined.

Any time there is some causal affair that takes place involving a particular mammal, for example, it is never in virtue of its falling under the category of "mammalian" that it does so. Rather, it is always due to other facts such as its more particular physiology (classified more accurately the stricter the genus classification). Furthermore, there are problems with even defining the term. Platypus, for example, have traits that make them non-traditionally mammal because they lay eggs. The point is that natural kinds are a strict matter. They must starkly pick out certain properties and powers, it classifies things by their powers; it is not itself a power. Even worse than this is the supposed functionality that occurs in disparate kinds of machines.

For example, consider "internal scanning" as being a function done by both computers and humans. The actual powers associated with these depend on the specific natural kinds of the human or computer, not of some higher-order function.

This brings me to premise (c). Despite what functionalists propose, it appears to me that something such as a pain sensation, usually taken to be multiply realisable, is not so. A function vaguely defined as the pain dispositionality, e.g. moving away from the source, can be had by many disparate kinds of systems. But the problem is that the function itself does not define the qualia's existence. The *feeling* of the pain is distinct from inputs and outputs of a system.

There are cases both ways of systems that behave as though they are in pain and yet they do not have the appropriate categoricity of pain or secondly one could feel pain without the appropriate behavioural effects. This makes sense under my theory because it is not some broader "function" that determines the categoricity of an object. Rather, it is based strictly on its chemical composition and arrangement - its real natural kinds. Broader functions *in themselves,*[81] usually those we impose as concepts on similar objects, including what we functionally define as "pain," have no essential relationship with the generation of pain qualia. Of course, a functionalist would disagree. They would argue that if any system, including machine, had the right functionality of what we define as pain, it *would therefore* feel pain.

To argue against the intuition of the functionalist is difficult because it is at this point where we have reached the limit of human knowledge and evidence. Whether one believes a silicon robot could possibly feel qualia in this world depends on one's raw intuition of what seems plausible. Those who say it's impossible may be considered "biological chauvinists." We do not have any evidence if function is sufficient for qualia, or something else is needed. All we know for certain is that humans have qualia, and then we infer that it's likely that complex animals have qualia too because their physiological make-up and etiological profiles are not too far off from ourselves.

Lastly, there is an analogy between how I am treating the issue of multiple realisability and how Heil carves the picture. As Lowe (2004, p. 473) describes Heil's view:

"… the predicate 'is fragile' is true of both a glass vase and an icicle not in virtue of the fact that

[81] That is, a function considered without the essentiality of the material of the realiser. Whereas on my view and those reductionists such as the type-identity theorists, a certain kind of functioning is not enough: the type of underlying matter is essential.

they have a common property - whether having a "common property" is construed in terms of sharing a universal or possessing exactly similar modes - but rather in virtue of the fact that they have imperfectly similar modes, in the form of different properties of their microstructural organizations which make both of them shatter (albeit not in exactly similar ways) when struck."

Take Shapiro's example of a corkscrew. He believes that *being a corkscrew* (F) is a multiply realisable property, so long as the corkscrews differ in relevant functional ways, not just differing in colour or chemical materials (Pereboom, 2002, pp. 524-525). A winged corkscrew and a lever corkscrew both supposedly share the numerically same property F, but why should this be? They both individually perform a similar job as their dispositions allow them to have from their unique compositions, but it would be a jump of reasoning to postulate some new entity entirely simply because of how we categorise their actions.

In response, the non-reductionist might argue that multiply realisable properties, though they are postulated as extra additions to an ontology, serve a valid explanatory role and therefore that provides good reason *to* posit these entities. After all, considerations of parsimony are just one of many in Metaphysical theorising, and that it should sometimes give way to other factors. However, in this next chapter, I discuss the role that *explanation* plays in metaphysics and epistemology. I specifically address the nature of multiple realisability and explanatory use in Section 5.8.

Chapter 5: Ontological Reduction and Explanation

5.0 Explanations and Properties

In this chapter, I focus on "explanations" that are based on temporal changes, i.e. horizontal ones concerning how one event leads to the next over a period of time. I shall save the question of how the atomic base "explains" its vertical higher-level phenomena (simultaneous relationship that holds with a single moment in time), a kind of determination relation which is quite different metaphysically. For example, micro-constituents explain their macro-properties insofar as they are the smaller mechanisms by which the powers and parts are identical to the macro-properties. The way a physical substrate determines its phenomenal mode is a brute kind of property, I argue. This is discussed in more depth in the next, final chapter.

I will first discuss the nature of higher-order properties in general. This leads us to a discussion about functionalism. "Functions" are essential to any Metaphysical theory and so I draw out the various options and what ontological commitments they hold. Next, I discuss physicalist variations. After that, the bulk of the essay concerns the nature of "explanation" and how to view the problem of intentionality, beliefs, ascriptions of mental states, etc. I argue for a reductive view but then explain why it is to be preferred to eliminativism due to practical reasons rather than theoretical ones. Finally, I end with the beginnings of the next chapter leading from here: a discussion of the metaphysics of phenomenality more generally.

5.1 Higher-Order Properties

It is apparent that the notion that there exist higher-order properties is common amongst contemporary metaphysicians and philosophers of mind. This type of property is invoked in order to explain the relationship between the base level of fundamental atoms–of which all physicalists concur exist primarily–with a special kind of property that cannot be captured by that lower level of existence or description. That is, those who postulate higher-order properties believe at least one of the two following facts to be true:

1. *Static entity:* There is a formal reality to higher level properties, such that this formal reality is not present in the base atoms of the object in which these higher-order properties either inhere, or are produced by those atoms. They are often posited to explain similarities found at the higher level. E.g. epiphenomenalism.
2. *Active entity:* The series of affairs that include higher-order properties would have behaved differently if those higher-order properties were not there. In other words, higher-order properties are unique powers which are not present in the atomic base alone. E.g. NRP and emergentism.

There are many kinds of non-reductionist positions. I believe the main kind of non-reductionism (what makes them unique) lies in their belief in Functionalism. Not all non-reductionists are functionalists but I believe it to be its most prominent form. This is how Melnyk (2003) proposes it. Furthermore, it seems to me that a philosopher who believes in multiple realisability will most likely be a functionalist. This is because a function is the abstract formal property that is shared, in a realist fashion, among its instances. A non-reductionist who rejects this, namely one who accepts (1) and (2) without functionalism will be more aligned with the emergentists. Indeed, Kim (1992) argues that non-reductionism is just emergentism reinvented. I categorise functionalism as having two main kinds; abstract and concrete.

Functions. Falling short of emergentism, those theories that do not explicitly argue for downwards causation will inevitably end up with a form of epiphenomenalism when probed deeply. This is because such latter theories have all of the work done by the underlying (base) physical connections. I have argued in depth about how NRP decays into epiphenomenalism due to Kim's Exclusion argument. With similar views such as Davidson's Anomalous Monism as traditionally understood, for example, it too cannot give any legitimate power to the mental *qua* mental because the laws governing events are strictly physical. Does the "Causal Materialist" view (Armstrong 1968 and Lewis 1966) fare any better?

The Causal Materialist view is a form of identity theory. It is distinct from the standard version as it was presented by Smart (1959) in the fact that it pivots around the causal role a mental state plays in a theory, whereas Smart was more concerned with identifying states with brain states through a different route of parsimony. The argument, as Lewis (1966) presented it, is that 1) experiences play a role in causes and effects within our mental life and 2) the causal role is fulfilled by neural states. This was the seed for functionalism to grow. Now, though the

Causal view is a version of the identity theory, it is quite antithetical to the identity theory that I have proposed. Discussing this along with functionalism will illuminate the underlying metaphysics.

There are a few distinctions that first need to be made. Lewis's view is a sort of reductive functionalism whereas Putnam's functionalism was non-reductive. I will discuss more of this below. Lewis's argument points to experiences as being causally efficacious. First, an experience is here to be understood as the full mental state, i.e. it includes qualia within its token nature. Second, it begins from the premise that mental events have power. Third, it emphasises the particular roles and what is performing the role behaviour, rather than to reify and conjure a new abstract property over and above these tokens, as Putnam proposed. Given the variations, let us survey them broadly here:

Type A Functionalism. One kind is that proposed by the non-reductive functionalists: there is an abstract entity or property P as a functional kind. It is a property of objects performing functions of P's essence. Regardless of material kinds, so long as P's function is held, the formal property P is present in that object or system. Consider pain to be P, it is amongst various material kinds, from animals to robots to aliens. There is a many:1 relationship, i.e. many different lower-order chemical kinds fall under one self-same higher-order property.

Type B Functionalism. On the other hand, the reductionist will say that P is not present amongst all of those kinds, and if it were, it is only as a convenient concept and not as a referent property that has any formal reality in itself. This kind of functionalism may not exactly be what is generally understood to be functionalism, but nevertheless I shall consider it so. Namely, there could be a reductionist particularistic functionalism.

I agree with (B) because material constitutions and their categorisation into natural kinds only occur as a 1:1 relationship, e.g. human-pain is C-fibre firing.[82] However, there is an important discussion to be had here about how fine-grained the natural kinds and their instantiators are. For example, the lowest level will be "kinds" concerned with chemical constitution and molecular arrangement, and most properties other than arbitrary properties such as which spatial location the object is located. As such, any reputed thing that is supposed to exist in that exact form, unchanged amongst various material constitutions, must be because we have failed

[82] In this context, bracketing the phenomenal feel itself.

to grasp a formal property out there in Nature. Why should this be the case? I argue it is because one is lax and preferential in their treatment here of the metaphysical matters, postulating a new kind of abstract entity where, in other sorts of inquiries within the sciences for example, no such postulation would or should be made.

Consider an example in particle physics, a sparse property, i.e. formal, intrinsic, essential, etc. such as charge is instantiated in particular kinds of particles. Leptons such as electrons and muons are distinct kinds of particles, yet they exactly resemble each other with respect to the property of negative charge ($\delta-$). But is negative charge therefore supposed to be an abstract property which is "multiply realised" within electrons and muons? If there is proposed an analogous argument to the one made by the functionalists and their kin, one could state: negative charge is not reducible to base property instances because it does not depend on any one kind of particle to exist.

This argument fails, however, because in each instance negative charge *just is* its instantiation as particles. If there were only electrons that existed, without any other negatively charged particles, then surely the concrete charge property that existed would be *as* those electrons and nothing else. As I mentioned earlier, it is dubious to postulate an emergent property when the particular instantiations are enough. In other cases, there is a salient difference in the types concerned, yet we would still not conceptualise the members of the category as falling under multiple realisability.

Let us consider the property of *heat* in general. Heat is plausibly a natural kind which does important work and is not arbitrary, and secondly it is reliably understood within physics alone. Heat is nothing but the mean molecular kinetic energy of the object considered. It is identical with mean molecular kinetic energy. This reductionist identity is accepted by all, including Kripke. But if we follow an analogous reasoning to the advocates of multiple realisability about the nature of the mind, we should deny this simple 1:1 identity. This is because heat is not always transferred by mean molecular kinetic energy but also through radiation, a different natural kind which performs the same function of heat transfer but without it being through the medium of buzzing particles.

So there is a choice here. Either we stick to the identity relationship, in which case it would be a disjunctive-property relation[83] whereby there are various independent

[83] I discuss this in Section 5.8.

instantiations falling under a category, or instead we invoke an abstract property via multiple realisability. I take it that the reasonable naturalistic and parsimonious option here would be to maintain that there is no new property "heat" to postulate over and above different kinds of mechanisms for instantiating heat. In earlier times of ignorance, heat was thought to be a natural kind that could only be instantiated by the kinetic energy of molecules. Once we had discovered that this same phenomenon of heat transfer could be achieved or instantiated through the energy of photons *as well*, it would be natural to understand the property of heat to be identical with "the transfer of mean molecular kinetic energy of atoms *or* through the energy of electromagnetic waves."

The fact that the non-reductionist does not postulate a newly generated "heat" property aside from the unique formations and mechanisms that can instantiate it is probably due to the following. In Nature there are numerous cases of "multiple *variability*." "Variability" is to be distinguished from "realisability" in this technical usage. Multiple variability is the simple fact that there are many ways for something to be, all understood to be of the same category, but no new property need be postulated that all things have in common. In my view, all of nature is like this in the sense that there are only determinate instantiations that exist, i.e. concrete objects on the lower-order of reality, sharing only a qualitative identity. Multiple realisability is an unreasonable ontological excess.

At this point it might be asked, if these philosophical parsimonious considerations are all well and good, what sort of situation *would* warrant the postulation of a new higher-order property? What would be different about that world compared with ours? First of all, such a question is difficult to answer because it is a problem about the hidden reality of metaphysics. That is, such questions cannot be resolved in an operational sense: empirical data cannot directly provide an answer. It is for this reason that I advocate a minimal and parsimonious ontology; by nature it avoids mistaken commitments.

Nevertheless, I believe progress can be made on this issue. The beginnings of a theory start out modest, attempting to make the fewest assumptions since assumptions are costly. So when beginning an austere foundation, we decide to add entities where it is needed. We include those entities referred to by the sciences for otherwise we would lack a means of explaining what occurs in the world. What about higher-order properties? They should only be postulated if there is a gap in the explanation; something missing if we stick to the rigour of reductionism.

Now, this "something missing" could either be the static entity of type (1) I mentioned (first couple of pages of this section) whereby I take epiphenomenalism to be a paradigm case, or instead it could be an active entity of type (2) which has a novel power. What differentiates these two types of entities is of course their ability to effect change in an event that follows from their presence. In what follows, I will focus on type (2) entities. That is, I will argue that there is no need to posit type (2) higher-order properties to *explain why an event occurred that way*. Nevertheless, I then differentiate my view from eliminativism due to practical reasons.

Before moving on, it is worth noting a few remarks about type (1) entities. Type (2) entities are supposedly needed to explain the process of change in the world from one moment in time to the next. Therefore it is a temporal causal "gap" in explanation that would follow from reductionism. In other words, we could have all of the mechanical material forces, yet we would come up short in fully determining the exact nature of the event that followed. But what would justify a belief in a type (1) higher-order property? This is a complicated issue because we can no longer look to powers to change succeeding events. Instead, it is to be found *within a single moment of time*. I discuss this view in the next, last chapter. Needless to say, I have sympathy for this view except that the phenomenal properties do not need to be of a "higher-order" of existence.

My own view is that qualia is separate from function ontologically since the material mechanism determines all its properties. It would go like this: material matter acting in various ways (or being in various formations) -> qualia -> concept of "function." With the mental states in question, e.g. beliefs or sensations, even in their differences they do share a function. For example, the sight of redness, realised by different kinds of neural mechanisms in a bird or a human, function very similarly. This is a necessary but not sufficient fact for the higher-level mental state in question. That is, without the function, the mental state would not arise, just as a dead person's brain cannot function in a way to *constitute* (rather than realise) mental activity. This is why my view is not functionalist; the "function" alone, abstractedly, is not sufficient to generate the higher-level property in question. Instead, I argue, the particular material (system) with its states and formations is both necessary and sufficient for the higher-level phenomena's existence. And furthermore that the concepts invoked by functionalism are easily captured, without ontological reification, by the reductionist who can explain everything perfectly well and rigorously without postulating non-concrete or determinable entities.

The functionalist believes that a property F emerges (or is tapped into) once mechanisms in condition C occur. With a mental property, M, say, a quale, to the functionalist it arises because of F. Some will say M is identical with F (e.g. Melnyk 2003). I have spoken about qualia in reference to functioning, i.e. that similarly functioning systems will have similar qualia. For example, humans and dogs function similarly to damaging stimuli, and furthermore they probably feel similar qualia. But this is because of the mere similarities in C, whereas F is a mere way of grouping concepts together.

The smallest mechanical particular parts and their relationships lead to the logical relationship sufficient for higher level phenomena. Condition C does whatever is required of F yet without inflating ontology unnecessarily. In other words, "function" to a reductionist is merely a way of describing movements, processes, relations of bodies in a system over time, etc. The functionalist bolsters "function" to a higher-order abstract level.

5.2 Yablo's View

The theory of mind I shall call the determinables theory, beginning with Yablo, is similar to functionalism in its postulation of the many:1 relationship. Certainly, determinables range over their determinants, ignoring their unique constitutional variations, and so it is similar to multiple realisability and the assumption that an exact kind of material constitution is irrelevant so long as *something* is held constant. For example, the property of redness, Q, is a single property ranging over various kinds of realisations of it. If the book is maroon and the chair crimson, they supposedly equally share in the property Q. Here I wish to state its relationship with functionalism.

In Yablo's (1992) view, the perceptions of redness lies partly in the qualia as distinct from mere behaviourism of reacting in certain ways in response to stimuli. This is clear from his explanation of the nature of determinable properties in relation to Sophie the pigeon (ibid, p. 257). There, Yablo argues that the determinable red is doing some important work as its own distinct formal property beyond its determinate instantiation as a particular shade.

Yablo asserts that if a pigeon called Sophie were conditioned to peck at red triangles only, not those of other colours, then this shows that redness is a real property since she can pick it out accurately. This is fair. However, does the fact that it pecks a scarlet and maroon, but not yellow, show that redness is something over and above those particular red shades? After

all, red must always be instantiated as a concrete shade, so where is the redness aside for its instantiated shade?

The mere tendency to be able to decipher red against blue or green, say, means that only light waves of a certain range (620nm-750nm) causes certain physiological responses in the bird. But this is not because of a higher-order property. It is consistent with Tiehen's (2012) "Type Eliminitavism" whereby there is no additional determinable property above the determinate shades. Suppose that scarlet is an emission of 630nm wavelengths. Then a scarlet triangle will trigger Sophie's brain in the relevant way, whereas blue light has wavelengths too short to do the triggering. Now, if crimson is 700nm, then a crimson triangle, again, will physically trigger the relevant response. So all we need to say is that redness is not a real, distinct, formal, existing property out there at all. Rather, if the wavelengths fall within a certain range, each time coming from discrete physical trope causes, we can *then conceptualise* them as red (as perhaps Sophie also does perceive them as red). In the end, there are the tropes doing all the work, and redness is once again an abstract generalisation of the fact rather than a unique referent itself.

Though a determinable does not *have to be* functional in essence, it usually is. Things behave or are similar in their ways of existing usually *because* of their causal or functional roles. Thus, Yablo argues that bodily acts could be determinants to the determinable of the mental property "deciding to act." Whether this is done via waving one's hand, or waving a flag, etc. so long as they share in some functional property they may all be labelled as falling under the property of the determinable. Suffice it to say here that such a metaphysic seems quite arbitrary: it is quite easy to postulate a real property with causal powers of various things simply because of what they have in common or the significance we give to abstract things. With the functionalist, that "something" in common is a function that is reified metaphysically. But the vital point is that the function is the bearer of relevant power to its instances. With Yablo, it is a determinable, which may or may not be functional in essence.

5.3 Mechanism

The view I will be espousing is reductionist because it is mechanistic in its proposed ontology. By "Mechanism" I mean: "…mechanism has emerged as the new standard for scientific explanation. Mechanistic explanations are causal explanations. What explain are the causal relationships between phenomena rather than the deductive relations between sentences

describing them" (Theurer, 2013, p. 909). Theurer's point is that the "new mechanical reductionism" focuses on smaller ontological vehicles of explanation rather than theoretical bridge laws.

Therefore it is to be distinguished from the Nagalean enterprise of attempting to find theoretical bridge-laws between distinct levels of inquiry (ibid, pp. 909-910). My outlook is in tune with how the early modern philosophers understood the enterprise of reductionism, as was prompted by the Enlightenment thinkers Descartes, Boyle, Galileo, etc. (see Theurer, 2013). Within this minimal framework, I am excising even abstract functional properties for being superfluous.

I believe that "mechanisms" are all that exist when it comes to causes and effects. That is, whether small or big, there is only physical material acting in certain ways due to its quantified and qualified nature. It exists in space-time and follows the laws of physics. In other words, its complete "causal profile" (Shoemaker, 2007) or collection of disposition properties lies within the material realm of atoms behaving in certain ways or being disposed to behave in certain ways due to their configurations. When it comes to every effect of the mind, it will therefore be behavioural. This includes not only outward actions but also internal physical changes, for example held by neurons in the central nervous system.

The main problem with this is that phenomenality itself does not seem to be a mechanism. Rather, it is a qualitative type of existence whose essence is defined by causes and effects over time. Nevertheless, this does not negate the possibility of its "identity" with a (biological) machine, since their causal profiles and spatio-temporal existence could be one and the same existence expressed in two distinct modes of being.

However, a more difficult question is whether the quale in itself, that is, ignoring its spatio-temporal existence as a material object, is of the nature of a mechanism. In other words, what is the relationship between shapes and colours (insofar as mental imagery is concerned) that we see in a moment in time, for example? Whether that itself is mechanical is a difficult issue for the reductionist and physicalist, and I do not claim to possess an answer for this. The guiding idea in this thesis is that reducing entities to constituent mechanisms, etc., perform the task of explaining why all events have been led to be that way from previous events.

It is worth bearing in mind that the task of reduction in philosophy has often been thought of as a crude activity that flattens complexity, oversimplifying phenomena while also creating unnecessary explanatory puzzles. Contrary to this, I believe that reductionism grounds the facts

and explains them in important ways. As Copleston says of Levi-Strauss's activity of "dissolution" as reduction:

"The level which is to be reduced must be conceived in all its distinctive characteristics and qualities; and if it is reduced to another level, some of its richness will be communicated retroactively to this other level. For example, if we were to succeed in understanding life as a function of inert matter, we would find that 'the latter has properties very different from those previously attributed to it'" (Copleston, 1974, p. 213).

5.4 Ontology of Explanations

When it comes to "explaining" events, it should be noted that the issue concerns rational understanding. In what follows in the discussion about events, this is a distinct issue from the problem of the phenomenality of the mind. This is because the former problem is about the success, reliability, and intelligibility of how certain concepts and postulates factor into valid explanations of events. The problem of phenomenality is about recalcitrant and strange properties which emerge and supervene on physical bases at moments in time. That is, the non-reductionists argue from two fronts. On rational grounds, they press the question of how one should account for higher-level explanations about beliefs, desires, etc. and the second problem being how we need to add to our reductive ontology to account for unique emerging properties. The problem of phenomenality is one that would persist even without anything regarding "explanations" of an event (from *preceding states of affairs)* whereas the rational problem depends strongly on how it is that we happen to understand states of affairs and how they link with one another.

Nevertheless, phenomenal properties *can* factor into this problem of rational understanding. That is because there are not only purely intentional statements that we refer to in explanations regarding human behaviour, e.g. beliefs and intentions. We also appeal to the concepts of people's phenomenal experiences. So, the non-reductionist poses the conundrum to the reductionist: "Why can we validly appeal to intentional states such as beliefs and phenomenal states such as perceptions of the colour blue, when explaining why some event occurred the way it did?" Below, I discuss this problem in relation to intentional mental states. I save the discussion of phenomenal properties, including their causal nature, for the next chapter.

If the higher order and lower order properties are to be described as identical, then one may be considered a reductionist. Some reductionists such as the Nagalean ones argue that if one set of properties 'B' (say, one from a special science, and the other from a natural science) reduces to something else as 'A', then the conceptual terms used in A must be able to fully capture the terms (in sense, not just reference) used in the theory that describes B. I believe this is an epistemological claim to be rejected. The phenomenon of "explanation" has a mental and metaphysical connotation which should not be conflated. I advocate for a normative reading of the essence of explanation. That is, if X explains Y, this means that our grasp and concept of X does a good job at giving us essential information about Y. Whether that is how it came to exist, or why it has the properties it does. This most effectively happens when causes relating to Y, especially genealogical, are divulged.

This is important because it logically relates to the fact that one need not be able to explain a phenomena through lower levels for reductionism to be true; a lack of explanation could just be symptomatic of our rational limitations as finite beings. I am not supposing that the lower level could fully, through some conceptual knowledge or theoretical language, i.e. through our inquiries in the sciences, explain higher level phenomena. This would be a conceptual translation, which is completely distinct from the issue of what smaller ontological parts, mechanisms, entities, and properties exist. This is because a theory has its own (e.g. higher-level) conceptual objects of study with its own sense, language, and level of perception (e.g. whether one looks through a microscope in physics, or at the writings of a society as they piece together the mass ideas of a people in Sociology).

I profess that a thoroughgoing reductionism seems to be the best metaphysical description of reality, but I do not advocate its epistemological reading. In order for us to be clearer on the issues, one must explicate what it means to *explain* a phenomenon or theory, and how that is distinct from an ontology subsuming that of the supposedly higher-order ontology. Furthermore, this will elicit the separation of Ontology from Epistemology that occurs in Reductionism. According to the non-reductionist, without reference to higher-order properties and their concepts, there is no way we can provide a complete *explanation* of the states of affairs in Reality. This horizontal "explanation relation" may, or may not be directly causal in nature (e.g. it may be intentional or rational instead).

First, if we wish for the definition (2) on the first page (of this current section) to be a disposable premise to Reductionism (as would be the case in my conception of a legitimate

Reductionism), it must be because it bears an epistemological claim that that we do not need to accept if we wish to stick to a solely Ontological reading. I have already attempted to do this by following Kim's technical language of higher-*order* properties being an ontological posit, whilst the higher-*level* properties are not–they are merely differences in our epistemic perspectives. This clears up any potential confusion about what is actually real and doing work, given that we are speaking about distinct domains of phenomena and inquiry, e.g. intentional and mental events as well as neural and atomic events.

Second, there is the issue of epistemological vs. explanatory reductionism as being two distinct kinds. Hoyningen-Huene separates them in this way (1992, pp. 290-291). He explains that *epistemological reductionism* (p. 290) comes in two flavours. (a) "whether the concepts necessary for the description of B can be redefined (in an extensionally equivalent way) in terms of the concepts of A." and (b) "whether the laws governing B can be derived from those of A, supplemented by redefinitions mentioned, suitable initial boundary conditions, and possibly by suitable supplementary assumptions."

Next, he states that *explanatory reductionism* is when B can be explained in virtue of mechanisms of A. He has another category for *ontological reductionism* which concerns whether A and B are ontologically identical. First, it is peculiar that he separates the categories in this way. I think it would make more sense that "explanatory reductionism" just is "epistemological reductionism" or, depending on one's perspective, it is a form of "ontological reductionism." This is because explanations are about *understanding* the nature of something which is a mental matter. Or, on the other hand, one might think that explanations are about the causal referents and their relationships, whereby it would be a case of ontological reductionism.

In what sense should it be that explanations do not always track powers as exact correspondents (thus providing room for example that an explanation of X may in fact be a way of describing a distinct power Y)? I believe there are many kinds of examples where this is so.

1. Metaphorical explanations. We often appeal to metaphors in, for example, biological explanations: we might say that a gene acts a certain way because it "wants" to survive, even though a gene has no wants.

2. Vague or indeterminate explanations. “Smoking causes cancer” doesn’t specify the causal mechanisms. Once those are specified, one is able to see what is really doing the work here.
3. Coinciding attributes. “He recoiled because he felt pain” is plausibly done wholly through nerve impulses.
4. Approximate or model-based explanations. Meteorologists use models like the Global Forecast System (GFS) but the actual weather does not exist in an indeterminate state. We can explain and predict the weather in such approximate ways; in reality, we just don’t know all the variables.
5. Coincidental properties. Imagine the members of Plato’s cave watching shadows. They would presumably be able to explain and predict what is going on within the shadows but it would be a mistake to think that the shadows have their own distinct powers.
6. Overdetermination. One might explain natural events through superstition: whenever something bad happens they explain it through supernatural forces. To some people these are completely valid explanations. In reality, those occurrences happen due to purely natural powers which are sufficient.

These cases are merely meant to show that explanations which make use of certain concepts or events can be mistaken in terms of *what is really going on*. I believe this is true of when we explain events as though they happened due to phenomenal properties when in actual fact we have much better reason to believe that power comes from physical events rather than phenomenal events.

5.5 The Preference for Reductionism, Ontology of Conceptual Information

Now it might be asked, though there is a distinction to be made between the epistemic and ontic dimensions of explanation, is it not a perk of a Metaphysical theory that it can make better sense of real explanations than the competitor? In this case, since non-reductive theories postulate real intentional causes such as belief-entities ontologically distinct from neural states, they are better able to explain behavioural events that follow from them, whereas the reductionist cannot capture these explanations within his postulated reductive base as being all that is real. Since everyone agrees about the legitimacy of such kinds of higher-level explanations, for example, my belief that it is raining *led* to me grabbing my umbrella, does that lend credence to

the reality of what we're describing? Why, it is asked, did the events lead that way described by higher-levels if not their independent or intrinsic causal powers? In other words, are not these higher-levels referring to higher-order properties distinct from the atomic base?

My answer to this is that the propositions that appeal to higher-level properties in true statements could in fact be paraphrased equally in terms of "what exists" and *more truthfully* when it comes to causes, effects and powers. This is to say, statements regarding explanations that invoke higher-level phenomena are in fact only true via the truth of the atomic bases and *their* powers. Consider the following proposition: "The event that eventuated (i.e. Joe's head turning) was determined, in part, by the activity of Joe's particular mind" would be the brain's existence and the powers that lie therein. The truth-maker would not involve any higher-order sui generis mental or phenomenal properties.

The rejection of abstract entities or properties might sound like Nominalism but it is not, for I postulate particular properties. I advocate an ontology without reified higher-order determinable entities "over and above" their determinate instantiations. After all, anything that we come across in the world is always of a determinate nature. A "determinable" exists only as a concept. Heil (2003) is similar insofar as he postulates a "particularist" theory. But as Lowe (2006, p. 472) points out, Heil is not a trope-theorist because he claims that things are not *made of* their properties. It is, rather, an object and property ontology.

Reductionism gives sole priority of powers in the world not just to those forces and existents within physics, but furthermore it holds that this all occurs on the *microscopic scale*. Heil appears to agree (Lowe, 2006, p. 468) with this view since he prohibits the appeal to higher level functions, instead he argues that the lower level properties are sufficient on their own to account for the existence of the phenomena, e.g. pain. In other words, the individual and unique neural mechanisms, in various kinds of animals for example, are enough on their own to account for the pain property. There is not something over and above, common to all these instances, bestowing a self-same property.

The reason I differentiate reductionism from particularism is because one might be convinced in rejecting higher-order properties, yet not prepared to give up all on all powers that are not on the micro-level (including large scale existents such as planets, fields, etc.). That is to say, a non-reductionist could reasonably be suspicious about higher-order *abstract* properties, yet be fine with the *particular* higher-order powers of certain holistic compositions. For example, the non-reductionist could believe that organic matter is special in some way not

captured by physics, such that a new biological power emerges and supervenes on that object. I prescribe that higher-order abstract properties should be rejected by the reductionists and non-reductionists alike. It is a mistake of reasoning based on an expedient illusion of explanatory power to posit a property which is far removed from the particular instantiations. This abstract property arises because people postulate it once they have found properties in common. It is the wrong way round to suppose that it is *because* of that abstract property that the objects share common features.

This argument is in line with Heil's advice (2003) not to be so quick to suppose that a property is real just because it "fits the picture." However, what I have said should not be confused with the issue of universals. Here it is just worth mentioning that one could believe in universals of some kind, yet still believe they have particular instantiations (as Armstrong believes) and furthermore that they exist as the lower level of reality, concerning atoms without any need for higher-order properties.

I shall discuss the power of phenomenality in much detail later in this essay. For now I wish to briefly outline some difficulties and to clarify the position. When I say that qualia does not have power, it is most important to note that it does not have any power *itself*. Namely, there are no effects at later moments in time that were caused *in virtue of the qualia*. Now, it might be unfair to say that the qualia do not have power because it resides in the brain and the brain does have power. I argued against this line of reasoning, especially against the non-reductionists in the Chapter 3 on the causal exclusion problem of the mental. I also discuss this further in the next chapter.

What I wish to point out here, though, is that to think of qualia "in themselves" is already to abstract a real property from its object. As Berkeley (1710) warned, theorising about a property on its own after abstracting it away from all else conceptually, can often lead to intellectual errors and unsound conclusions about ontology. After all, properties do not exist singularly, ever. They *must* be predicated on something and they are conjoined in bunches within each instantiation. That being said, it is a fair question to ask, which ontological feature of something was responsible for why the following event occurred the way it did. Qualia, insofar as they are qualitative modes, bear no causal influence. That is wholly done by brain states.

5.6 Not Eliminativism

I have offered the solution whereby "explanations" *within our grasp* need not be translated into statements about atomic bases without any mention of higher-level phenomena. That is, the reductionist is not aiming to subtract the usefulness and legitimacy of such terms and concepts that make use of the higher-level language. To do so would be both mistaken and impractical. This view is to be distinguished from eliminativism, for many non-reductionists picture reductionism as a straw-man with faults of eliminativism. Eliminativism gets it wrong on both fronts. First, eliminativism rejects what is espoused by both reductionists and non-reductionists: that statements regarding higher-level intentional entities (such as beliefs) can factor into true propositions. By this I mean that such statements as "I went to the shop because I believed food could be bought there" is not true in the most literal sense because "belief" here mentioned is a faulty concept that does not latch onto a real entity. The term "belief" here is a misguided one that does not latch onto a real entity or relationships with other real entities, etc. Instead, it is to be banished, and the true referent is a brain state that is completely different to the nature of an entity such as a belief.

I believe that Churchland (1981) has missed the mark. In his view, higher-level intentional states are like "phlogistons" more than they are like "the transfer of molecular energy." Phlogistons are a defunct entity that was postulated to explain the phenomenon of combustibility. It was misguided and did not refer to the true nature of combustion. Furthermore, as a system of causes and effects it was close to being accurate in predictive power, but faulty. It was mistaken because there is no extra entity such as a phlogiston that exists but rather that heat reduces to something simple and already known - the vibratory motion of particles. The postulation of phlogistons provided expedient explanations for many phenomena, from heat to oxygen to burning, etc. Nevertheless, it was incorrect to suppose they exist.

Churchland (1981) analogously believed that folk-psychological terms and predicates are entities posited to fulfil some explanatory function and serve to describe the nature of mind, when in actual fact, he asserts, they are fictional entities. It is true that in today's explanations, especially in physics, we should not appeal to phlogistons at all because they are not real, nor do they have a true referent since they do not latch onto anything real. By contrast, a more legitimate case of something proffered by physics is the "centrifugal force." This "force" is thought to keep water in a bucket when it is swung in a circle. Though it is called a force, in

reality there is no such force. The movement of the water is due simply to its own inertia. We could analyse this by saying that the "force" is a folk-concept which latches onto something else which is the true micro-composition. Analogously, I believe, this is the case with beliefs and neuronal states.

There are three points I wish to make about my own theory in contrast to eliminativism.

1. A "belief" is a true description for an object. Beliefs denote brain states with which they are identical.
2. Since "beliefs" are folk-concepts and not scientific natural-kind terms, they are imperfect in their exact denotations. Beliefs are defined functionally and therefore it is a fuzzy issue of whether a particular neural state "really" fulfils this function and thereby can be predicated as a "belief" or not.
3. Even if "beliefs" are not scientifically rigorous, their usefulness in communication and Psychology cannot be understated. They are needed.

To Churchland (1981), higher-level terms do not even "capture" real or true states of entities. A reductionist on the other hand, through this concept of capture, is able to maintain the pragmatic utility that so obviously accompanies reference to terms such as beliefs and the like. Churchland is saying that, ideally through much more knowledge, we will eventually excise all talks of beliefs in favour of speaking about brain states instead. But the reductionist such as myself finds this very implausible. We are social animals who speak according to what is convenient, and second, to what naturally is most easily understandable.

Regarding (3), Churchland (1981) *prescribes* an abandonment of vocabulary that makes use of intentional terms: folk-psychological entities such as beliefs. That is, Churchland condemns the use of such terms when providing explanatory propositions, even if they are accepted as useful fictions. That is, it is one issue whether an entity or property actually exists or is an accurate depiction of reality. It is a different matter whether we should abandon such terms altogether. After all, we still speak about genes as if they "want" certain ends, such as to survive and reproduce. In actual fact, there is no such thing as wants in genes, but nevertheless it is helpful to speak of it in this way even for biologists.

5.7 The Nature and Use of Beliefs

Another important question posed by the non-reductionist would be "why are we so good at latching onto atomic bases through higher-level phenomena if the latter does not hold any independent reality as higher-order properties?" In other words, if psychic entities such as beliefs do not exist beyond mere brain states, why are they so useful and why do they factor into true statements? Furthermore, what means do we have at picking them out, as even the most simple minds are easily capable, if not their reality? This is the line of argument made by Fodor in his defence of NRP and in favour of realism about folk-psychological predicates.

My proposed solution to this problem is to rethink this paradigm. Normally, whether in general discoveries or in science, we contemplate an entity that is out there in the world and then describe its properties. Such external objects are seen as "out there" to be found, as though they have autonomous existence. I contend, rather, that the brain has evolved complex functions over millions of years of evolution as social creatures. One skill required for such a life is to be able to understand the mental states of others, using the intentional stance, etc. What was done by the rudimentary minds of even cavemen, we now are able to reflect on our keen ability to predict, understand, and project thoughts onto others. It was purely a functional skill that is done quite automatically, to us then labelling these intuitions and such mental states as "beliefs" etc.

The reason I mention this genealogical story is that it provides a simple yet plausible and coherent picture of the origin of our mental ascriptions to others and ourselves. I present it in a vein similar to a biologist explaining the origin of complex life. Suppose there is a student who is more inclined towards extravagance in his worldview. He argues that our inner workings of our bodies, from the complexity and harmony of the proteins in our body to the impressive orchestra of a beating heart, immune system, etc. all cry out for an explanation. From these considerations, he argues that the only explanation is a divine design. The biologist tells a different story of how our simplicity leads to complexity, all without divine forces or intervention.

What I am doing here is telling a story which takes out the sense of specialness that realists about intentionality such as Fodor often invoke. It seems to me that the complexity of the mind explaining further events with reference to something more than the power of physics is an illusory allure. We know that simpler animals can more or less fulfil the same sort of functions but we think it more plausible that they do this without higher-order mental

properties that we ascribe to humans. We have a continuity between us and such older simpler biological machines that came before us, computing as they did but just with a more powerful computational system.

Oftentimes at the end of Metaphysical theorising the result comes down to the following. We can paint many pictures of what is going on, all logically consistent with the empirical data. But if they are all consistent, how do we choose amongst them? I suggest that we choose the one that can explain everything, as I have done with reference to what is widely understood within biology alone (without reference to non-reducible physical entities), and yet does without any unnecessary extravagance.

I sympathise with eliminativism for the following reason: ontologically, beliefs themselves do not have any formal reality. The difference, however, is that I argue for an appropriate paraphrase of propositions that make use of beliefs whereas eliminativists shun it all together in favour of a completely different paradigm. When we want to talk about a mental representation or disposition to act in a certain way, an effective way to do this is to speak about beliefs. When I do so, I am referring to brain states, though I am not aware of which neural states in particular. Most of the time if I assign a "belief" state to a person correctly, it will be because it picks out a certain system of neural states. I have identified it through psychological prowess of intuiting other people's natures, rather than it being because there is a real property behind beliefs over and above neural states.

However, there will be times where it is not so successful and this is where the insight from eliminativism comes in. Given that there is no formal reality to beliefs, it is a fuzzy issue of whether the predicate will truly apply. It will depend on a person's judgement, rather than the (physical) nature of the objects. So, when someone ascribes a belief to someone, it is equivalent to some brain processes going on in their head. But sometimes, it will be a tricky issue whether those neural states should be considered "belief states" or not, because the functioning of those neurons may be close but not close enough to actually truly be a belief. For example, it could be that one considered to be a belief was actually more so an "intuition" or what Gendler (2008) calls an "alief" but natural properties will not settle this issue. Conceptualisations and labellings settle the matter.

The heuristic nature behind assigning belief states to people can further be illuminated by the following thought. Consider, for example, Susie who is wondering what the cause of her inflamed discoloured skin is. A doctor would know that it is, say, impetigo caused by the

bacteria streptococcus. Susie's friend Charlie thinks it's caused by a fungus, while another friend Bill thinks it is due to an allergic reaction. Bill's claim about the source of the disease is wrong and so it fails to refer to an actual state (or an event) of this world. Suppose Susie says "the cause of this skin disease is germs." Technically, she would be right, but she hasn't identified the actual particular kinds involved. Furthermore, fungi are also germs but in this case the disease was not caused by fungus. Analogously, to assign a "belief" to someone is like calling the cause "germs" which is a simpler, general, folk-concept that latches onto particular kinds that the speaker does not know.

In effect, eliminativism insofar as it recommends normative explanations avoiding such states as beliefs is a misguided proposal. I have argued that speaking of higher-level explanations, for example regarding one's beliefs, emotions, or perceptions are not to be eliminated but *reduced* to atomic bases and their kinds, ontologically. So long as we translate, through our language and concepts via a paraphrase, we can in some sense maintain the validity of the higher-level conceptual explanations so long as we admit candidly that ontologically, all the existence and power lies only within the atomic bases (which are *captured* by higher-level terms).

The next question, then, is why do many suppose, through multiple realisability, that the exact same property F is present within the human and the octopus while reductionists such as myself insist that they are not? They may have similarities, but their natures are not identical. Due to our psychological tendency as well as within a limited perceptual framework such that we cannot make the fine distinctions that are required to know whether the sameness of a property is genuine.

For an example of this, when we feel various pains over the years, we are poor at categorising which pains are of the same type. The line from dull pains to sharp pains are hard to tell, even though they surely are different, not just neurologically. In our failure to notice the following, we are led astray, eventuating in an extra ontological item. That is, we blur the lines of what is required for there to be a genuine resemblance in distinct kinds of objects (including sensations), i.e. we find similarities and infer that it is due to a property they have in common, but in actual fact there are subtle differences which make it so that the properties are actually distinct. This is like someone who sees two objects in the distance, such as a car and a bus but because the clarity is poor he claims "they are both cars." When in actual fact, the real properties, determined by the micro-constitution, prove otherwise.

In truth, there are fine ontological distinctions and variations within the property instance of pain: each instantiation of pain within a physical object has with it the subtle uniqueness of that particular constitution of various natural kinds. For example, consider the pain a human feels when he stubs his toe on a sharp edge. The contact will cause his delta-fibres to fire from his toe up to his brain eventually. All of the unique neural effects from that moment happen because of the particular constitution of his nerves and all its exact formations. The unique natures of those spatio-temporal objects with all of their specific properties must be taken into account when we are considering actual causes and effects, namely particular events. Once this is done, it is clear to see how these precise mechanisms are enough on their own to provide all the effects we observe in reality.

5.8 Useful Explanation vs Ontological Reality

I have argued for the plausibility of physical reductionism insofar as the ontology of powers is concerned. However, the non-reductionist worries first, that the reductionist cannot explain why some event occurred in the way it did when he references only that which is couched in the language of natural sciences. For example, we can explain the presence of a man at a shop given his *belief* earlier that he should go and his *desire* for food, etc. even though these are terms outside of physics. We lose explanatory power if we attempt to describe these same events with regards to atoms or neurological properties. If we knew the exact neural correlate and its atomic formation, giving this information lacks the richness of the kind of information we gather from a system of concepts such as beliefs, desires, intentions, etc. Nevertheless, the fact that some conceptual frameworks aid us in intuitively understanding something, that is a distinct matter from what is going on ontologically.

For example, consider the fact that it is useful to group various distinct kinds of something under a unified concept G, insofar as they share an important property, as is done with multiple realisability. This does not yet give us a strong reason to postulate a property F as distinct from those various unique instantiations. Jaworski (2002) defends the reductionist "Disjunctive Move" against the multiple realisability argument. This move concedes that mental kinds are "multiply realisable" (more accurately what I called "multiple variability" in Section 5.1) by different physical kinds but proposes that each mental kind can nevertheless be identified with a disjunction of its physical realisers (for example, pain = C-fibre firing or O-fibre

firing or etc.). Thus, reduction could proceed via bridge laws formulated in disjunctive physical terms. Jaworski calls these disjunctive predicates "R-disjuncts" (ibid, p. 293).

Anti-reductionists have generally dismissed this on explanatory grounds: such R-disjunctive laws, they argue, cannot be genuine scientific laws because they fail to be explanatory. Rather, they merely list realisers rather than revealing what unifies them. This "Explanatory Response" (Putnam, Kitcher, Pereboom & Kornblith) maintains that laws must be explanatory (ibid, p. 289), and explanatory generalisations must connect natural kinds capable of factoring into relevant derivations. They argue that since disjunctive predicates cannot figure in such derivations, they cannot be explanatory and so cannot ground reduction. I have already argued that this is a desire for epistemic reduction which is not the same as ontological reduction (of mechanisms and powers, etc.). Nevertheless, even at the epistemic level, Jaworski bridges the gap somewhat.

Jaworski accepts that laws must be explanatory but insists that what counts as explanatory is context-relative. In ordinary or "pedestrian" psychological contexts (ibid, p. 301), explanation demands intuitive insight into an agent's reasons or motivations, and in that setting a disjunctive physical statement obviously fails. But in the specialised context of inter-theoretic reduction, explanatory interests differ. Why might it be that when we explain, for example, Carl's action of walking to the shop in virtue of a list of neural and muscle states, that we suppose that we have not explained it? Before answering, first consider the following.

Jaworski identifies three possible reasons why R-disjunctive laws might fail to be explanatory:

1) They are disjunctive.
2) They are open-ended.
3) They are physicalistic.

The first two reasons have it that explanations employing disjuncts or open-ended propositions are in general unexplanatory. As Jaworski notes, this is *not obviously* true. For example:

"Mary is walking down the street because she wants an ice cream cone, and believes she can purchase one down the street, or perhaps because she believes they are spying on her, and wants them to think she enjoys ice cream, or perhaps because she wants to see Pedro, the ice cream man, and believes walking to get a cone an excellent pretense, or perhaps …" (ibid, p. 300).

This proposition is both disjunctive *and* open-ended, yet it still explains Mary's behaviour to some extent. Jaworski suggests, therefore, that the problem with R-disjunctive laws might seemingly be that they are couched in physicalistic terms. He references (ibid, p. 299) Socrates' passage from Plato's *Phaedo* (98c-99b), in which Socrates laments about his reading of Anaxagoras that the latter has given a description of human action in physicalistic terms (bones, sinew, the four elements), yet this does not capture Socrates' explanatory interests. Socrates is interested in the *reasons* for people's actions. So that is the reason why the description of the cause of Carl's action seems unexplanatory; it is couched in physicalist language which is not conducive to our interests.

If this is true, Jaworski argues, then the Explanatory Response proves too much. It is not that disjunctive laws are unexplanatory but apparently that physicalist explanations are. But clearly many physical laws and descriptions are explanatory, such as Newton's or Einstein's laws. Jaworski suggests that the anti-reductionists could resist his arguments in the following ways. First, by denying that explanatory standards ever vary. This is obviously very implausible given that types of explanations will vary widely depending on the context (folk psychology vs quantum physics etc.). Second, the anti-reductionist could argue that we don't make use of disjunctive laws in science usually. Jaworski states that this doesn't rule out that it may need to be invoked in some cases such as psycho-physical reduction.

Third, they could reject derivability from disjunctive laws. However, NRP's own premises entail such derivability. Multiple realisability entails several distinct physical types. The physical base of that mental property is, by definition, a *disjunction* of its possible realisers. Hence, if every mental state must have some physical realiser, then any true generalisation about that mental state can in principle be restated or derived in terms of that disjunctive physical set. Fourth, they could abandon the physicalist assumption that mental events are always physically realised. That is, if the anti-reductionist denies that in every nomologically possible world then the mental states could float free in some cases, which would prevent the formulation of general disjunctive physical bridge laws. But this would essentially be to abandon physicalism.

Each of these moves, Jaworski therefore argues, is implausible or self-undermining. The reductionist merely needs to assume that scientific explanations can differ from everyday explanations, and that physical theory might include disjunctive laws if required. Hence, the

Explanatory Response fails to block reduction, and the Disjunctive Move remains a coherent strategy for reconciling multiple realisability with psychophysical reduction.

Where do we go from here? If it is the case that, as I have argued, all causes are in fact concrete physical powers and that levels of explanations can still be valid regardless, there is one important issue remaining. To my mind, the main pitfall of an overall reductionist metaphysic would be in its seeming inability to capture *raw feels* into its ontology: those leftover phenomenal properties that escape not just the conceptual *language* of a physicalistic schema, but that the properties themselves have a "strange" and unique, distinct type of existence disparate from any generally understood purely physical manner of existence. In this next and final chapter I shall tackle the nature of properties and modes generally, which leads to an account of phenomenality.

Chapter 6: Powers and Epiphenomenalism

6.0 Are Properties Nothing but Powers?

Heil speaks about the dictum traced back to Plato's *Sophist* that 'for something to be real, it must have some power' (otherwise known as the Eleatic Principle). One reason to believe this is that epistemically, how would we know that a property exists if it makes no causal difference to the world? Heil dismisses this line of reasoning as verificationist (Heil, 2004, p. 225). The bigger worry is that a property without power would make no difference at all, so what is it and why should it exist? Shoemaker defends the Eleatic Principle by arguing that its contrary leads to absurdity.

"Necessarily, if A and B are properties, A = B just in case A and B make the same contribution to the causal powers of their (actual or possible) possessors" (Heil, 2004, p. 225).

Shoemaker continues, that this principle would have it that such an impotent property (Heil, 2004, p. 225):

a) Would make no difference to the causal powers of its object.
b) It ought to be possible for properties A and B to make under all possible circumstances the exact same contribution to their object.
c) It would be possible that an object could have the powers of its properties switch, i.e. an object might make a radical change in its powers without change in its underlying properties.

In this thesis I present an ontology whereby there do exist properties that (themselves) have no power and make no difference to the causal series of affairs. Therefore, I agree that condition (a) could legitimately describe properties that we should postulate to exist in this reality. I believe that qualia is such a property, as a mode.[84] As for (b) and (c), I do not accept that this possibility must be the case just because a property makes no causal difference to reality. This is because, as is the case with qualia (say) the relationship with its object is not utterly irrelevant

[84] More on this in later sections, but it is to state that if a world was physically identical to ours then it must have qualia. Therefore, if a zombie world were to exist, the laws of nature would have to be different to the extent that it is suppressing the existence of a property, i.e. qualia.

and accidental, but indeed there is an important identity and *expression* of that brain state. Thus, though qualia make no difference to the causal powers of the object, it still does make a difference to the object insofar as it is a unique expression.

In order to highlight the importance of the genuine (distinct) reality of qualia and their corresponding neural states, consider the properties of a completely inanimate object: a chair. The chair lacks qualia, so it lacks a (phenomenal) property that a bird would have, for example. Why is this? It must be because the chair's atoms and their qualities are not sufficient to generate (e.g. through realisation, emergence, identity, etc.) qualia. If we were to allow the chair to have perceptions, then we would thereby be adding a new property/capacity, to have a new kind mode of existence instantiated. This is not just a behavioural function, it is the presence of a first-person experience. We could keep all of the chair's dispositional properties the same and also its intrinsic properties associated with physics such as shape, but this is something different than the same set of dispositional properties having an aspect to them (as a whole, perhaps).[85]

What is essential is that at some point in time, a token brain with its quale are such that the brain and the quale share the exact same material in existing at that moment, and the material possesses all of the causal powers. A quale would then be a material mode of existence itself, analogous to whether an atom's mode of existence is through the attribute of an electromagnetic field or from a quark field. Yet, a quale would be a relatively special kind of material mode because its mode of existing is through its *presentation* to the subject/object or bearer. A "presentation," unlike a quantum energy field, is something which is not itself relevant to bestowing powers. For this reason I prefer the category of "aspect" for qualia.

6.1 Heil's "Identity Theory" of Properties' Dispositionality and Qualitativeness

I therefore take it as reasonable Heil's suggestion that the Eleatic Principle is question-begging against idle properties (Heil, 2004, p. 226). This brings us to the discussion of properties and powers themselves. I shall stick to Heil's amended version of the traditional vocabulary, for his words more accurately represent their purpose and subtleties. A "qualitative property" is one that is intrinsic and non-dispositional, whilst a "dispositional property" is one that confers power *directly* (Heil, 2004, pp. 226-227). The qualitative properties are said to confer power only

[85] The relationship between each of an object's properties with each other and how they relate to other modes such as a phenomenal aspect is a difficult matter which I will not discuss here.

indirectly, through contingent laws of nature for example (Heil, 2004, p. 227). The purpose of Heil's essay is to argue establish that it is not the case, as has been generally accepted, that qualitative properties and dispositional properties are mutually exclusive.

Heil goes further, proposing that the actual nature of all properties are that they have the features of being *both* qualitative and dispositional. Heil calls this theory "the identity theory" (Heil, 2004, p. 242) but in order to distinguish it from the identity theory of mind and brain, I shall call it "The Identity of Property Features." I find this conclusion to be more congenial than the Eleatic Principle for the reason that it allows that there is something to a property other than its power, i.e. its being a categorical modification, rather than only providing power. An example of The Identity of Property Features Heil provides is a baseball's spherical property (Heil, 2004, p. 243). It is a dispositional property because it allows the ball to roll, for example. Yet nevertheless it is a qualitative property because it is intrinsic. The point is that dispositional properties are grounded in qualitative properties, and with this I agree.

Contrary to Heil, if pressed, I do believe that there are, in this reality, properties that may be termed "purely qualitative" of which Heil denounces for the fact that it would be impossible to detect them (Heil, 2004, p. 248). Furthermore, he states that one should not suppose that the case could be reconstructed such that there are "property-pairs" by which a dispositional and qualitative property were present in an object in virtue of nomological laws (ibid.). My disagreement with Heil on this issue stems, I believe, from the fact that in his view there is a literal identity of a *logical/nominal* kind between a property's being dispositional and qualitative. He stipulates that all properties are obviously dispositional (ibid.), but I do not think this is true.

I intend to take seriously the view that there are property-pairs (or more than a pair) of these properties, and that they are related, as through some identity relation. I take as an important example of this to be qualia, even though, on the face of it, it would lead to the property of qualia to be "idle" (ibid.). The reason that I ascribe to this belief is partly due to the insistence that there is a genuine reality to the perspectives which differ when considering a property; these perspectives being of an ontological nature rather than epistemic (for example, a perspective of something being an idea of redness or its being a brain-state). Heil, does not wish to countenance "aspects" in his account of Ontology (Heil, 2004, p. 243 & pp. 249-250) but I take them to be a justified mode of existence to posit in our theory.

6.2 Perspectives and Aspects of Properties and Objects

Why do I espouse the reality of aspects? I propose that there are two kinds of "perspectives" denoted by the word, as alluded to a moment ago.

1) One kind of perspective is an epistemic reference-frame by which we think about the world.
2) Another kind of perspective is an ontological point by which existence expresses itself in a certain way, i.e. through a phenomenal "space"/sense modality.

An example of (1) may be portrayed by the following example. Imagine a portrait of King Henry hung on a wall, whereby his face is 15cm wide. Suppose that, when standing close to the painting at position A, Henry's face looks 15cm wide, and when taking 10 steps back to position B his face looks 14cm wide. At A, you might say that "Henry's face looks 15cm" which would be correct. At B, you would say his face looks 14cm, and that would be an incorrect geometric attribution to the painting itself. Thus, the real property of the painting, here geometrical, stays the same. The difference in the seeming length at position B has no bearing on the intrinsic properties of the painting at all.

In other words, things might *appear* different to the viewer, but nevertheless the object in question remains stable and unchanged. Therefore, a certain purview which distinguishes properties due to their own position rather than real distinctions in the property/object itself are not carving nature by the joints. Thus, a mere (epistemic) *perspective* does not have any bearing on the essence of the object itself.

Now, if we consider (2) I have in mind what is the most basic sense of a perspective ontologically speaking, i.e. the very "appearance" of something to that perceiver. For example, the phenomenal experience presented to one's conscious mind when perceiving a sunset or tasting ice-cream. These perspectives are themselves real ontological properties, best understood, in my view, as physical aspects of objects. According to such logic, a phenomenal property P refers to the same property(ies) (but, in my view, not the same *mode*) that a physical-functional property F does (Loar, 1990). However, I do not make the pretension that there is no real difference between P and F themselves, for they are two distinct senses and aspects nonetheless, and these senses express themselves through a different mode than ordinary third-person properties that have their essence captured by physics.

Perspectives of (2) are the phenomenal "what it is like" to be that thing. For example, consider a person seeing a tangerine in front of them. (1) describes the way we think about the tangerine as a concept in our understanding, and this process can be computationally explained. I believe the story just told about perspectives of type (1) are separate and distinct from the perspectives of the second kind. If one believes that the existence of qualia is not functionally reducible, then there must be a different account espoused.

Perspectives of the kind (2) depicts a perspective whereby the tangerine is "thought" not through the means of physical-functional concepts (analogous to an inanimate machine processing information), but instead the very awareness of phenomenal properties apparent to it, e.g. the sight of a tangerine as a spherical orange object. The way that the spherical orange qualia appears to the person is his phenomenal perspective on reality, and it is this sense in which I submit that we should admit of its genuine reality.

Heil would rather say that it isn't necessarily true that two different perspectives on something entails an ontological distinction, for he argues it is similar to how we may *see* a Necker Cube (Heil, 2004, p. 250) in two different ways; it looks different depending on the way you are focusing on it (analogous to the illusion where a picture of an animal head looks both like a duck and rabbit depending on how your brain processes it at a time). Thus, Heil denounces the reality of distinct "aspects" of properties and the idea that there is something more to the essence of a single property's dispositionality and its qualitativeness because they are two ways of seeing the same side of a coin.[86]

The ordinary usage of the term "aspect" is merely some feature of something. For example, that one aspect of the statue is hard and sharp and another aspect of it is softer and smoother. Obviously this is benign, for Heil to reject "aspects" it is because he is using the word to carry substantial ontological weight to it. I follow this usage of the term. Lowe says about Heil's theory, that:

"... every property is simultaneously dispositional and categorical - or, to use Heil's preferred expression, qualitative - in character (pp. 111-13). This, however, is emphatically not to say that every property has two "aspects", a dispositional "aspect" and a qualitative "aspect" (pp. 118-20), for that would be to indulge in the spurious idea of higher-order properties - that is,

[86] I declare this on behalf of Heil instead of saying an object's dispositional property and qualitative property are two *different sides* to the same coin, as that would admit of aspects as something real (i.e. each side is different in essence to the other).

properties of proper- ties (not to be confused with the equally spurious notion of higher-level properties)" (Lowe, 2006, p. 474).

I think, instead, there is a distinction to be had in this identity concerning phenomenal perceptions.[87] Let us consider the person feeling a pain, and his brain/mind. Heil argues that there is a true identity between the brain's dispositionality and its qualitativeness, such that there is no difference to its dispositionality and qualitativeness just as considering two perspectives on a Necker Cube does not admit of any distinctions within the object. I argue in opposition, that there is indeed a *real* difference in existence between a brain's[88] dispositionality, on the one hand, and its qualiativeness, with qualia being one of these qualitative properties, on the other hand. I believe that we must allow that the *aspects* of qualia and brain-state are more than mere *looks*.

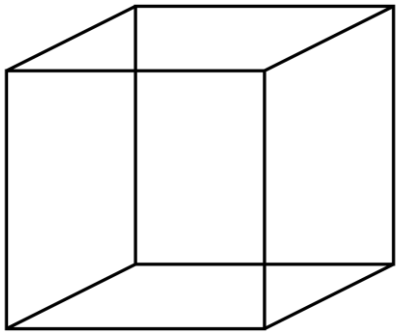

Fig. 2. A Necker Cube is an illusion whereby, depending on how our mind's organise our visual stimuli of the cube consciously or unconsciously, its perceived dimensions differ.

6.3 The Relationship between an Object's Dispositionality and Qualitativeness

Heil speaks about properties in general as having a certain nature, such that if the dispositionality of a property and its qualitativeness are identical then this is the case for all properties. I believe that this is the case with most properties, and indeed all properties spoken about in physics. Shapes, charges, mass, etc. are all plausibly cases of properties that are

[87] For the Naive Realists and those of their ilk, I ask them to consider the appearances to the mind in visual mental imagery such as an imagination, rather than assume, as perhaps they do, that there is no intermediary phenomenal idea to perceptions.

[88] Here when I speak of the brain as an object, I mean the collection of all the properties that it instantiates, as being intensionally different from its property of qualia.

intrinsic in their expression of their object yet are also powers to act in certain ways and so are dispositional. Here there is no problem with the property being both qualitative and dispositional. However, I take it that the phenomenal properties of the mind require a different explanation. Consider some property of the brain, call it G. If G is the shape of the brain, then it is an inherent qualitative property of the brain, and insofar as it is also dispositional, it is the cause of the brain's relationship with blood vessels in various ways, say.

Alternatively, let us consider another property of the brain, call it F. Which property should we consider F to be when there is a man in pain and his C-fibres are firing? Suppose we stipulate that F (call it F_1) is the property of felt pain. It is qualitative, but is it dispositional? I am not sure. If, instead we stipulate that F (call it F_2) is the property(ies) of C-fibres firing, we may ask, is this qualitative? I think so. It is also dispositional because it disposes the nervous system to be able to send certain signals. A proponent of Heil's Identity Theory of Property Features may argue that F is both F_1 & F_2, and so it is that F_1 is a dispositional property as it does the same as what F_2 does. As such, F_1 & F_2 = F, and F is both dispositional and qualitative.

This move from Heil wishes to bypass even the minimal real distinction between an object's dispositionality and qualitativeness via the distinction of *aspect*; this would cease to capture the fact that the third-person properties within physics are what possess the powers in reality due to their existence as physical energy following the Laws of physics. Suppose Heil wants to say that the C-fibre firings have dispositionality and qualitativeness Set 1, whilst a pain going on in the same creature at the same time has a dispositionality and qualitativeness Set 2, then what is the relationship between these two sets if they are in fact identical? I contend that the picture should be carved differently, such that there is allowed to be aspects in the sense that the pain should be seen as an aspect of the C-fibres firing, as the C-fibres are completely sufficient for the effects of the brain insofar as the existence of the pain is concerned. In other words, there is no dispositionality to the pain insofar as it is phenomenal, but it is an aspect of something that is dispositional: namely, the physiological brain material.

This is important to bear in mind because if we are to advocate a description of reality whereby there is only one real order of being, namely the particular physical properties in the base level of things, then it will be true that all properties are dispositional because all base properties are dispositional. Otherwise, if the particular property is not dispositional, it is because it exists as an aspect (i.e. a mode) of something that is. I discuss this view in more depth in the later sections. For now, it is worth being satisfied with the notion that there are some

properties that seem to be solely qualitative, while all other (traditional, i.e. mentioned in the natural sciences) properties have both qualitativeness and dispositionality.

However, the question remains, what does it truly mean for a property to be qualitative? An intrinsic quality[89] such as mass is said to inhere in the object in a way that the property is not outside of the object. But what is it, then, that makes a qualitative phenomenal property "intrinsic" in a different and more unique way than those qualitative third-person objective properties that are the subject-matter of the natural sciences? There still remains a miasma around the vexing question about the *relationship* between object and property. In order to get to the bottom of it, we must consider the nature of objects and intrinsicality in general.

I think that the answer may be illuminated by contemplating what it means for a property or mode of an object to be intrinsic, inherent, or inside of its object, as this is what Heil's usage of "qualitative" is intended to capture. I suggest that we consider the thought-example of Kirk's "zombies[90]" in order to draw out our underlying intuitions. When we imagine a world that is exactly the same as this particular world we live in except that there does not exist any qualia, is this possible so long as we leave the brain-states otherwise untouched? In other words, are the physical states of the brain alone sufficient for causation, or does qualia as something distinct from this play a role in us humans in this world behaving[91] as we do?

6.4 Conceiving the mind's place in the world; Kirk's Zombies

Given my propounded austere conception of properties and appeal to the primacy of Physical properties, I believe that such a Zombie World is feasibly imagined, given that if all of the energy in the world were identical in the two possible worlds, the sequence of all events that occur would therefore be identical. The question, then, is where does qualia fit into this? First of all, it is important to note that the Zombie World is only feasible because we have assumed in its proposal that the laws of nature, or nomology, are different in that world to our world. In our world, suppose there is a brain-state P which has phenomenal properties as mind-state M (say,

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[89] Here I mean "intrinsic" as in "having this property regardless of relations to other physical bodies." "Weight" would be a relational property because it is mass plus the force of gravity. To be technical, mass seems to come from an interaction with the Higgs field, but whatever is the property that determines the nature of that interaction, I am calling *mass* here.

[90] When I speak of a "zombie" I mean a person whereby the only difference between him and a person in this world is that he cannot experience anything phenomenal, even though he has brain-states that in *this world* would constitute a phenomenal experience.

[91] I do not count "feeling" as necessarily behavioural.

the person is seeing a red after-image). It is not possible, given Global Supervenience, for P to exist without M. Therefore, *if* we are to even entertain the idea of a Zombie World being "possible" it is only as a fictional thought-experiment which serves to elicit details about our concept of the phenomenal mind and its relationship with the brain. I am therefore using it as an intuition-pump, rather than using it to make claims about "what is really possible" etc.

What we learn from the Zombie World thought-experiment is that the actual intrinsic essence of a quale does not seem to be something potent, for it is redundant relative to the powers of the *brain-states* (i.e. insofar as brains are considered from the perspective of physics, whereby qualia would not be countenanced at all) that have been stipulated to exist as otherwise identical in both worlds. Eliminative Materialists would take this to entail that the phenomenal mind is nothing worthy of a unique existence and that, in a sense, even our world is a Zombie World. I find this suggestion to be extraordinarily implausible due to the conviction that we have an indubitable epistemic access to the phenomenal appearances of things to our mind's eye. Of course, the eliminativist will want to undermine the grip of this intuition that we have an "awareness" of *phenomenal properties* in the bolstered sense which I am taking to obviously exist. Nevertheless, all can agree upon having a first-person perspective of our existence.

I must, then, justify why there is a strong intuition that the Zombie World is different to ours. Let us assume that we have phenomenal concepts and functional concepts which have equal extensions (e.g. See Papineau 2002 and Loar 1990). That is, when I am able to reach for a red apple when I am told to, it is because I have a phenomenal concept of "redness" in my mind, and it has an associated physical-functional concept (existing as an identical correspondent) which is applied by my brain to act in a way that considers the information gleaned from my seeing redness. This is the "phenomenal concepts strategy."

I believe that the Identity Theorist should concede of the essential difference between the phenomenal (i.e. a phenomenal property) and the physical-functional (i.e. a neurobiological properties) existences, in the sense that there is an important link between them but that they are two different *kinds of* grasps of reality and are therefore distinct modes of existence. Indeed, there is an important difference in the catalogue of what exists in one world where people were such that they had "phenomenal concepts" (here understood as a phenomenal experience), compared with a world in which people have only the physical-functional concepts; in other

words, they would be zombies. There must be some fact that grounds our experience of qualia compared with zombies.

The complication arises because we have two types of "existences" that have the same powers because they are the same thing, but they are the "same thing" under two different modes of being. To elaborate, consider an inanimate object such as a table. If we suppose that all of the properties under physics could be predicated of it under the term P(x), this would be known through the third person perspective. Now, the same could be said about the brain of a person that is not conscious (e.g. having brain-stem death) that P(y) denotes the full description of it under physics. Now consider a conscious brain, then P (the full description from physics) would not be sufficient to describe it. I think there are two considerations to be had here.

a) Why is the description from physics not enough?
b) What is the ontology of the situation when P is not enough?

To address (a), the answer must be that there is no means for an inquiry concerned with third person empirical observations to be able to directly, or even indirectly, "see" such phenomenal states of other beings. This is, as Nagel (1974) said, that we cannot know what the subjective state of something is unless we were that thing. I cannot think of any logical way in which this epistemic bridge could be overcome. For example, the psychologist Giulio Tononio (founder of the Integrated Information Theory) proposed a thought experiment (2008) of a future instrument that is in principle possible, that could scan an object and tell if it is conscious. Such that pointing to a worm the machine beeps a little but when pointed to a human brain it beeps intensely. The problem with this very idea is that we would not know if we can trust it or correctly calibrate such a device. There is no way to prove if it is a false-positive and we are back to the explanatory gap.

Or suppose one imagines that one day we will build a machine where it hooks up your brain and plays on a screen what the human is experiencing. Even if the subject says that the digital screen is displaying the visual imagery that he is experiencing in his mind while his eyes are closed, this is yet again based on finding neural correlates for experience-events. The scientists can in no way prove the man has any kind of phenomenal experience. The scientist must merely trust the subject's testimony that he is having an experience, and of what kind. That is not to bridge the explanatory-gap. What is required to access the phenomenal property (mode) of a being, rather than to deal only with physical correlates of it, is to *directly* access by

being it. But since one cannot be anything other than their own body and consciousness, it would be impossible to overcome this.

In addressing (b), there is an important sense in which there is more to the story of properties (or modes) than what P is describing. The problem is, given an identity theory, in some sense, P does tell the whole story, but this is only in virtue of *properties* per se and their powers. But P has another description, call it Q, and this is those same properties under P but existing under a mode that is unlike anything the existences of third-person non-conscious matter has. One might retort that this is just a mere difference in "presentation" rather than an ontological difference, but my point is that to even have access to this new field of modifications and all of their qualities requires some basis, i.e. in some way of existing.

Consider that the phenomenal property as a token visual state is the same (set of) properties, then the phenomenal mode apparently has as much power as the brain-state but it is just being considered differently, "considered" within the ontological essence of the first-person representer of that affair. In one sense, every time we speak of a phenomenal state we are thereby referring to the whole existent; we cannot abstract away its essence except in theory (as we do when we imagine other possible worlds). The quale's power is real, one might say, at least in this world: in virtue of the brain-state. Indeed, this is what the non-reductionists who propose "causal-inheritance" of the higher-order property from the physical base believe (Haug, 2011, p.456), and also the Identity Theorists. However, this is only because we have equivocated in how general we are being in the usage of our terms. Often, we do not distinguish between the niceties of what it is to which we are truly referring.

To elaborate, consider the whole referent, the mind and the brain as one existent, call it N. This is constituted by all the properties under physics, P, as well as the ontological mode of Q as qualia. N surely is a cause of a man's disgusted expression after tasting something bitter we might say. In fact, since Q = P, then Q was a cause. But the real question is was Q *itself* relevant? I do not see how it could have been a power if P *alone* is already sufficient. It is merely a semantic claim at this point that Q did anything. After all, in practice it is virtually indistinguishable from epiphenomenalism.

There must be a real distinction between P and Q, even if their powers and relations seem unintuitive. The traditional Identity Theorist seems to neglect the real difference that still holds even in the identity between a phenomenal state and a neural state. That is, between a man's brain as a third-person object with which other people may interact and tamper as a

third-person material object, and on the other hand the man's first-person quale of orangeness. How can we not admit of any real distinction between what are of two different expressions of existence? The first-person mode is not something spoken about in physics, nor can it even be inferred because it makes no difference to behaviour that could possibly be observed. In other words, would there not be an ontological difference between a brain and all of its third-person properties, compared with the nature of the expression of a phenomenal property? There must be some property (a phenomenal mode) in reality that distinguishes us from zombies and their world where there is a lack of the property of phenomenal consciousness. And given that the zombies behave identically to us without qualia, qualia cannot be a dispositional property. That leaves the option that it is purely categorical in essence.

6.5 The Phenomenal Concepts Strategy Issue

What exactly is the problem with the phenomenal concepts strategy (PCS)? After all, I make use of it in my own theory. That is, I believe it is true that, for example, when I refer to a taste sensation of an apple I had yesterday, I am using a phenomenal concept that has the same referent as a physical-functional brain-state concept of that same occurrence. But my problem is that PCS purports to have dissolved the issue of the difference between these two kinds of concepts by notion of "modes of presentation." This purportedly makes their distinction epistemic, not ontological. The idea is that there are only material brain states, but two ways of picking them out. So there are only concepts and functional mechanisms at play, nothing else.

However, their supposition that phenomenal experience and brain states differ only in their modes of presentation, analogous to the Hesperus and Phosphorus distinction, fails as an analogy with phenomenal vs physical-functional concepts. In ordinary cases of discovering identities between two senses of a referent, both conceptualisations ascribe properties of the same ontological kind, differing only epistemically. However, the physical description of a neural state presents structural, relational, and functional properties, whereas the phenomenal description presents intrinsic, qualitative properties. The distinction is therefore not a matter of linguistics or concepts but is instead metaphysical in nature. Phenomenal concepts are metaphysically distinct from all other concepts because they involve a raw qualitative feel.

I find this issue to be reminiscent of an insight by Democritus (translated by Kirk, 1983):

"Intellect: 'Sweet, bitter, hot, cold, colour are by convention; in reality, only atoms and the void.'

The Senses: ‘Wretched mind, from us you take the evidence with which you would overthrow us; your victory is your defeat’” (Democritus, DK 68 B125).

Though the original intention behind this quote was in addressing how twisted it is to use one’s senses to doubt one’s senses, an analogous structure of critique applies to the phenomenal concepts strategy. How can the phenomenal concept strategy dissolve the specialness of qualia when all concepts, even neural concepts, when thought about from the mind of a person, presupposes a first-person subjective perspective in the first place? The phenomenal concepts strategy takes qualia for granted, then claims to have done away with it.

My own position is that these two modes of access reveal not merely two concepts applied to a single type of property (supposedly purely material), but two distinct aspects of the same underlying reality. On a dual-aspect view, the very same state can be known third-personally as structure and accessed first-personally as experience. The immediacy of phenomenal acquaintance indicates a mode of being that structural description alone cannot capture. I discuss this view in more detail near the end of the next and final chapter.

Part II: Categoricity and Dispositionality

I steer away from the more eliminativist sentiments of those philosophers who undermine the reality of sensational aspects of the mind. Such philosophers misguidedly try to ignore phenomenal properties by ascribing them to the outside world instead (e.g. Place 1956, Locke 1971) or ignoring their unique nature altogether (e.g. Churchland, 1981). I believe this is a category mistake. Phenomenal modes such as the experiencing of colour, smelling, etc. are qualia and therefore properties of the mind.[92] Since the mind is identical with the brain, qualia are properties of the brain and not features of the outside world. I provide a unique account of qualia given the truths about categoricity and dispositionality of properties more generally speaking.

In Metaphysical theorising, balance is often important. Between two extremes, there is a spectrum of austerity towards the more profligate ontologies. Of those with an affinity with the former camp, they will avoid postulating additional entities or types of entities for the sake of rigour and prudence. Of the latter camp, those philosophers find it plausible that something real and additional is required to account for the phenomena in question.[93] Intuitions, and perhaps even temperaments will, off the bat, sway some philosophers towards some end rather than another.[94] But both sides will agree that sometimes they must accept propositions from the other side in some matters. My account falls more in line with the mindset that the facts do not require special or exotic categories in order to explain the world when a more reductive account suffices well.

6.5 Structures and Dispositions

I have mentioned categoricity as the feature of a property that is its inner nature. However there

[92] I therefore disagree with Heil and Armstrong (2004) about the nature of secondary properties. They locate them in the objects (like John Locke, 1689) whereas I locate them as modes of the mind (like Descartes and Malebranche. See Nolan & Whipple, 2006).

[93] Most often, in order to establish something such as a unifying force or a causal power distinct from the more basic constituents.

[94] I argued earlier that much of these disputes seem to be grounded in psychological intuitions rather than pure Metaphysics. A penchant for "barren wastelands" drives one towards Ontological austerity, remarked Quine. The "hard-headed" philosophers are driven towards materialism about the mind, remarked William James (1907). I make analogous arguments about the NRP (and those of their ilk including hylomorphists) and their motivation to create a higher-order of (mental) property to the atomic base.

is another aspect often associated with categoricity, its logical isolation from *powers* per se. Usually, those who believe in quiddities separate metaphysically the dispositionality of a property from its categoricity to such an extent that it is thought that one has nothing to do with the other. In other words, as Schneider puts it, they are "non-nomic" and "there are metaphysically possible worlds in which two *this-worldly* properties swap all of their causal powers yet retain their identities" (Schneider, 2012, p. 721).

Lewis maintains that the defining features of Humean properties are that they are self-contained and don't have much to do with the laws outside of them; what matters is their identity with themselves (Bird, 2006, p. 69). Conceptually this may be so, but I have argued for the (contingent) identity theory between a property's dispositional and categorical aspect in this world, and therefore we shall suppose that categoricalism is essentially linked with dispositionality, whether or not it bestows or is equal in power to the property's dispositionality.[95]

Given this nomological connection of identity I have postulated along with Heil, an object's categorical property is essentially tied with its power. In the way I will understand it, categoricity is almost like a character that imbues its object with distinctive intrinsic traits. Furthermore, these features allow for interesting connections and relationships with the world and what we observe as the effects of these we call these capacities "dispositions." Often the concepts associated with these are "inner" for categorical and "outer" for dispositionality. I believe these spatial metaphors to be illuminating though a clarification is required between its metaphysical and epistemological implications.

The first dimension I wish to discuss is the metaphysical. A disposition is an "outer structure" because it is the outside of an object which usually impacts upon other things. For example, consider a metal ball which has inside it a feather or a leaf. The ball's way of interacting with other things is somewhat irrelevant to what is inside, so long as the mass of the inner object remains constant. Similarly, those who shun quiddities are operationalists. That which does not make a noticeable difference to their prediction-based framework, i.e. deeper properties or substantial laws can safely be expelled.

Epistemology. The epistemological dimension is that, for categoricalism, it seems that we cannot know the true natures of objects because they do not necessarily tie with their

[95] I shall speak more about this ontic priority below.

dispositions, i.e. with the information we can gather about them through witnessing their nature by observing how they interact. Their categoricity could be in any way unbeknownst to us and we only see accidental patterns. Such is Hume's view. On the other end of the spectrum such as with Shoemaker's (1980) dispositionalism, there is no reason to postulate qualitative features that underlie the dispositions; there are only the dispositions. Therefore we know the full nature of objects because we can interact and discover their properties through their dispositions.

Bird (2006, p. 79) argues against categoricalism because it would "condemn us to a necessary ignorance" about the properties. Thus, there is a motivation to reject inner properties because that would entail an unpleasant scepticism. The argument in favour of dispositionalism seems to me analogous to the argument for naive realism by Berkeley (1710). He argued along the same lines against the corpuscular theory (objects are in reality colourless properties; only primary qualities exist). He stated that if the corpuscular theory were true, then we cannot know about the true nature or properties of objects. Instead, if we adopt his theory, then the properties we sense, i.e. the sensible properties, are all there are to the story and thus we are not left in ignorance.

In a way, categoricalism has quiddities trapped and encaged from the outside. But I do not believe that dispositionalism can save knowledge so easily. It is true that in their theory, we can directly grasp properties of objects by observing their dispositions. However, is it not plausible that there are dispositional properties of objects that will not or maybe even cannot express themselves by familiar means? Just because we can observe some dispositions, it does not mean we can observe all of them. Nevertheless, the point is that knowledge is relative to what we can observe on the outside. I believe this applies to consciousness; it can only be "accessed" from within.

On the identity theory of property features I advance with Heil, there is a similar epistemic problem to categoricalism but it is not so severe. According to this, we learn about both the dispositional *and* categorical nature of objects through observing their dispositions. In my view, this is because the categorical nature is what provides the character of the object and the dispositions are just one way that this character expresses its existence. Such is the nature of proposing an identity between the categorical and dispositional properties rather than to conceive of them as autonomous and unrelated (modally).

However, if there are categorical properties that may not effectuate themselves as dispositions (i.e. qualia), as I myself believe, there may be a wide range of inner expressions of

many types beyond our grasp. This is similar to what Spinoza (1677) stated about there being an infinite amount of attributes to every object yet we can only know of two categorical types, the physical and the mental. And yet, along with Spinoza and in alignment with my view, all of their dispositionalists are harmonious as being of one order. But I believe that there is a priority to physics, for one reason being that I do not think that all objects have a mental or inner aspect.

Metaphysics of structure. The concept of outer structure to me implies that there is more to the story than what we do or can know about it. For example, what is the veneer, superficial, crude understandings about something tell us only the main features about something, i.e. its outer structure. When wanting to know the "deeper" nature about something, more information is required to peer past the mere appearances, into what "lies beneath" or colours in the whole picture more so. I believe this is similarly the case with what the sciences such as physics can tell us. They can tell us every disposition, relation, and structure of the brain, but yet some information is closed off to the perspective of third-person observance. It is a manner of not being able to obtain the information that is there because there is only one privileged route by which to do it, namely to exist as it.

Campbell puts the point across this way: "Is it possible for anything to be constituted by nothing but causal powers? ... powers to move what?" (quoted from Heil, 2006, p. 42). Nevertheless, such a matter is resolved only through a basic intuition. My intuition is based on the regress worry: if every property is purely dispositional, with no categorical basis, then each disposition must be grounded in further dispositions, generating an ad infinitum chain of unrealised potentials. Without some non-dispositional anchor, nothing ever *finally* possesses the power that explains its behaviour; the entire ontology threatens to become a free-floating network of mutually depending dispositions with no metaphysical "bottom" to secure causal reality.

I covered other reasons for why dispositionalism is unsatisfactory in Section 3.12. Here is a more dialectical thought. One might think of the issue like this. Equations describe reality very well, but how deep do they peer? Galileo said that the universe was written in the language of mathematics. But maths alone is not sufficient to describe the universe, even in physics. After all, mathematics conveys abstract relations between things but the variables need content. That is why, for example, there are fundamental types of subatomic particles rather than them being of the same type yet differing only with respect to mathematical structure. In other words I am arguing that the world is necessarily qualitative because it has real categorical properties.

Dispositions and quantitative data are merely after-effects and the relationships that hold between the substantial matter that breathes life into those equations.

6.6 The Identity Theory of Categoricity and Dispositionality

I shall now elaborate further on what I take to be the best theory of categoricity and dispositionality: the identity theory. It should first be noted, however, that with any Metaphysical theory which postulates identities between seemingly disparate things, there are many qualifications to be made about differences *in some respects* and so the issue gets muddled. Take Heil's idea that the categoricity and dispositionality of a property are the same thing, "viewed differently." They are the same "property" though seemingly disparate, therefore one might call them "symmetrical." Indeed, Heil wishes to reject the more realist commitment to distinct "aspects" (Heil, 2004). But is this the same as Russell's neutral monism[96] whereby an object's (or the property in question) power *comes from* its categoricity? Russell's view thereby gives an ontological priority to the essence of the categoricity; however, I believe Heil's metaphysic allows for an equal status of the two kinds of being, a no-priority conception of a dispositional and its corresponding categorical property.

The advantage which Heil (2004) promotes, that in qualia being analogous to other categorical properties invoked by the natural sciences, allows its power to creep into the picture. In a way it is similar to how the "simple" reductionist saves mental causation by saying that the mind is the brain and that the brain does the cause such that through transitivity the mind can be said to be the cause. I argue, however, that on closer inspection, this is an honorary kind of power that is not itself real and if the inquiry is pressed, he would have to admit that this is not *genuine mental c*ausation because it is *not in virtue* of the phenomenal property that the following event exists in that particular way.

In Chapter 3 on the exclusion problem of the mental, I argued that the fact that qualia are not dispositional properties excludes their role in producing any kind of behaviour in the world. However, depending on how one understands categorical properties, this may seem too quick. For example, consider Heil's theory. One might say that sphericity is a categorical and dispositional property but that it does not make sense to say that a ball rolls because of the dispositional aspect of its sphericity and not its categoricity.

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[96] Russell ties categoricity intrinsically with phenomenality (so that an electron is conscious in some sense) whereas I do not speak of it in this way.

Indeed, it could be that the categoricity is itself dispositional because the laws of nature allow it to be so. In a sense it is illegitimate to carve a property into two aspects when considering powers, for there is an inseparable unity (an "identity" but its strictness must be qualified) between categoricity and dispositionality of the property in question. Consider sphericity again. Call its inner categorical essence, the quiddity, "c-sphericity" and insofar as we consider it in its ability to allow its object to roll, etc. the disposition "d-sphericity." If there is an absolute identity ontologically, then c-sphericity and d-sphericity are merely conceptual demarcations; they do not carve nature at the joints. Call n-sphericity the property as it is, one property that can be *understood* as c-sphericity and d-sphericity.

The question becomes whether n-sphericity is one homogeneous property or more like a dual-aspect one. I believe Heil (2003) would submit that it is like the mixture because he emphasises that the difference between d-sphericity and c-sphericity is in perspective alone. Ellis (2006), on the other hand, would indeed maintain the distinctness of d-sphericity and c-sphericity. This is because, on his view, some properties, i.e. the physical fundamental ones are dispositional properties and that has priority. Categoricity is just a feature of those.

My position is more like Russell's, though I have mentioned earlier where we depart. The similarity lies in the priority given to categoricity. That is, c-sphericity is the character of the object and d-sphericity is an entailment from c-sphericity. Those dispositionalists who give priority to d-sphericity tend to believe that objects themselves determine the laws of nature, i.e. the laws of nature supervene on the powers of objects. Regardless, what is more important to this discussion is categoricity itself. I therefore move onto the relationship between categorical and complex objects because it seems to me that the laws of nature produce a categorical property when the right sort of atoms join together.

6.7 Complexes and Categoricity

Consciousness is not a simple property. It can only arise when constituted by jumbles of different properties.[97] In order to understand the ontology of consciousness,[98] we must first

[97] Of course this is difficult or perhaps impossible to fully justify. I can only claim that I am not convinced by panpsychism.

[98] In this discussion about the ontology of consciousness, I treat it as a property like any other. So, in a sense, I am not targeting the heart of what makes consciousness unique (namely its subjective nature). I am discussing its "outer nature."

understand the nature of composite properties. I have argued that the sparse properties are universals that extend throughout the universe, the fundamental fields of quantum physics.

When discrete objects come into contact and stay connected over time in dynamical ways, a newer object is formed. From particles to galaxies, their objecthood is relative. Depending on one's preferred mereological standpoint, the arbitrariness of objecthood will vary significantly. For my purposes here, I wish to note only the practical and epistemic dimension of parthood. In my opinion, nothing about the metaphysics changes when one decides that some random parts of the world form an object "technically speaking" or not. It only factors into our conceptions and definitions of related issues. This being said, a composite object in my view is a macroscopic object whereby its parts have a tangible connection with each other, e.g. through touch or some other kind of force such as electromagnetism, in a tandem of processes.

When parts come together, the newly formed object appears to have new causal powers. An object retains its identity over time; it does not suddenly perish. A composite object depends for its nature on its parts and perishes when they perish. Thus, its identity and persistence is determined also by the stability of the interrelations of its parts. What is the power of the complex? One is reminded of the phrase, misattributed to Aristotle, that "the whole is greater than the sum of its parts." In actual fact, he said (Ross, 1908):

"In the case of all things which have several parts and in which the totality is not, as it were, a mere heap, but the whole is something besides the parts, there is a cause; for even in bodies contact is the cause of unity in some cases, and in others viscosity or some other such quality" (Aristotle, *Nicomachean Ethics*, Book VIII).

Even a reductionist will admit that the whole is "different" to the parts in some sense. In my view, the powers and existence of the atoms *and their relations* is all there is to the whole. As Kim puts it: "Having a mass of 1 kilogram has causal powers that no smaller masses have, and water molecules, or the property of being water, have causal powers not had by individual hydrogen or oxygen atoms" (quoted by Schaffer, 2004, p. 95). Nevertheless, macroscopic objects boil down, ontologically, to the microscopic beings and nothing more. There is only a change in perspective.

The reason I mention this here is in relation to phenomenality because I believe that this is a unique property which is unlike any other, yet again. That is, I believe it is arbitrary to think of a table as a top-deck with legs, or a table, or a bunch of wooden segments, or as a member of

furniture in the room, etc. for all of these are merely arbitrary ways of conceiving the real underlying material: tiny atoms connected together. But with the mind, there truly does seem to be something *ontologically generated* and *only* when the macroscopic object comes into being. In other words, even a reductionist must believe in what Chalmers calls "radical emergence" of consciousness, lest he be a panpsychist. The only difference is that this newly generated type of property, i.e. phenomenality, does not contribute any power to the physical series of affairs.

This phenomenon is similar to the property of shape because of its intimacy with categoricity. Ellis takes "shape" to be unlike the other usual properties of physics in that it is not dispositional but categorical (Heil, 2006, pp. 41-42). Ellis takes the fundamental properties of physics to be dispositional because they refer to real powers. Shape, on the other hand, only picks out the arrangement of powers - it is not itself a power in addition to what and where the real powers of its constituents are. But nevertheless, Ellis notes that shapes are important in telling us how objects will behave. Heil therefore names such properties "naked powers" (Heil, 2006, pp. 43-44).

I agree with Ellis's sentiment about shapes not technically being powers themselves;[99] they merely demarcate and are expressions of the real atoms and their powers in their arrangements. However, "shapes" clearly are still dispositional properties in some sense because they inform us about what an object can do, based on its particular arrangement rather than some other arrangement. I would therefore say that "shape" is not a "real" or "sparse" property itself but merely a useful conceptual fiction. Its use is in identifying which material is present. In other words, "shape" is not categorical or dispositional in the usual sense. It is analogous to how, to the reductionist, a "table" is *nothing over and above*[100] its atoms - it has no new dispositions in virtue of that property.

6.8 Theory about Qualia

From the points I have raised, I now move onto my position about how phenomenality fits into this all. My view is this: all the properties ascribed by natural sciences (in reality, those ascribed by theoretical physics) are all dispositional and categorical because of the reality of substantial

[99] Nevertheless, elsewhere in this chapter where I have spoken about the example of sphericity (Heil 2004 uses), this technical analysis here should not be taken to apply to that.

[100] Curiously, non-reductionists often say that a supervening mental property is "nothing over and above" its physical base. This is clearly false because it would entail an identity, i.e. a reduction.

natures of objects (that is, Essentialism). All of these properties (of physics) are powers. Qualia are unique in that it is a categorical property but *not* a dispositional property. This is because once all of the categorical and dispositional properties of physics are given, there is room left for something which does not contribute to its power to determine the next event and that this something is real (known from intuition) and it is an inner property that we could never publicly observe. Such a property is the appearance of phenomena to the mind's eye. Therefore, the fundamental divergence between Heil's view and mine is where to place qualia in the metaphysical scheme of things: he believes it is a categorical property like any other whereas I suggest it is of a different type of being. It is a *type* of property not had by any inanimate object.

This new type of property is a form of categoricity because it is a qualitative property that makes a difference to its way of being, but unlike the other properties under Heil's metaphysics, they are not dispositional. It is only the *same* dispositional information but flipped into another mode of being. That is, if all the information ascribed by physics, namely all of the inanimate properties were given, we would have its complete causal profile. But if we could rewrite this information, we would find something "new." For example, suppose some set of equations, call it theory-a predicted where object X would end at some time and some other theory-b through a different set of assumptions and equations were able to, with the exact same precision, decipher its end location. we could say that these two theories are "equal" or "symmetrical" under some determination. Yet they are certainly not the same, they involve different information. The power, effects, etc. remain constant (de re), but it is not in its *entirety* equal. Analogously, in my theory, the quale and brain at some moment are identical with respect to their core properties, but not in (categorical) information or aspects.

Most philosophers who subscribe to an identity-theory of mind, from Smart to Heil's modified version, attempt to save the power of the phenomenal through an argument about the transitivity of properties. One might ask about the identity of the mind and brain as I've illustrated it that I should allow for the mental to be causally efficacious because it is the same object as the brain and the brain has certain powers that we could assign to the mind too. Such is the entailment of the token-identity theory as the non-reductionist conceives of it.

However, as I have argued, the dispositional properties of the brain as they fall purely within physics[101] is enough to explain all of its effects.[102] In other words, I believe, as Howell has pointed out (Howell, 2014), that the exclusion problem can be extended to apply to the disposition aspect of the brain/mind such that one of its categorical properties, i.e. the phenomenal property, is excluded from inducing any power of its own to the situation.

As I have contended, I subscribe to some form of what Schneider (2012, p. 271) calls the "mixed conception" whereby most, but not all, properties are of one type: categorical *and* dispositional; they are essentially linked and identical (two dimensions of the same being). However, it is a mixed conception because I proffer that there are other more eccentric properties that do not fall under this category: namely qualia.[103] Suppose that all ordinary properties are a unity as identity of categoricity and dispositionality as though they are two halves that make a whole, I am arguing that there is some remainder left. Conscious experience is a different kind of property. It will therefore complicate and profligate the metaphysics somewhat (introducing more categories) but I take it to be a necessary countenance given the available evidence. Qualia seems to be a property like no other found in physics. Indeed, this is the recalcitrant source of the mind-body problem.

However, I do not take it to be that qualia is outside of the *ontology* of the stuff of physics (though it is outside of its *epistemology*). Instead, it is not like properties postulated in physics because it is not dispositional in the way that physics properties are. In accordance with Heil's Identity Theory, all properties in physics are categorical and dispositional "equally." But then all the categorical power falls within that set of properties and no room is left for any power from the additional categorical property that emerges uniquely to things like brains. The qualia emerge from proto-psychic inanimate categorical and dispositional properties. These smaller parts, the atoms of the brain, join together in a way that, eventually a macro-quiddity is formed.

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[101] Categorical properties under physics will include charge, spin, etc. when understood as qualitatively imbuing or modifying the object. First-person awareness is a special categorical property outside of the scope of physics,

[102] Of course, physics does indirectly involve the phenomenal properties within its subject because the stuff it posits is everything. But it does not capture the phenomenon on its own terms. It is like saying one has "captured" the mystery murderer in the building by placing everyone there into a prison.

[103] Schneider (p. 5) seems mistaken in assuming that the fourth (mixed conception) can be ruled out if the other three autonomous options are excluded.

6.9 Dispositions and Knowledge

As I mentioned earlier, dispositions are powers. But what exactly is a causal power? Most integral to its essence, I believe, is its ability to alter the next event so it essentially involves a change of events from one moment to the next. Causal powers are in effect how we come to know anything, for if it made no difference to the world, how could it enter our awareness? It would be like describing the nature of something invisible using sight alone. Such notions extend beyond: philosophers have asked how abstract platonic entities could be known if they have no effect on this concrete world that encompasses all we can interact with. However, there are ways of knowing about objects without directly observing their powers or changes.

This is where "inference to the best explanation" enters yet again. We must re-imagine powers in some sense. Later, I will apply these results to an account of qualia because, as I argue, they are not dispositional properties yet, obviously, they cannot be entirely void of effect, change, etc. for how else do we come to know it? And interestingly, it is not in the round-about way of theory that we come to "know" qualia in the way that we can infer platonic entities to exist, for example. Now, I myself do not believe platonic entities to exist. However, this is not because of the epistemic problem of how we could come to know a powerless object.

Suppose each number is a platonic entity. The first epistemic problem seems to be: how can I think of the number 2 if it is a powerless platonic entity in another world that has no effect on the series of this world? One way would be if its presence is integrated into the world's pre-set structure from the very outskirts. Indeed, at any moment in the future, the number 2 will not suddenly enter into some causal series and change the course of action - for this would be some kind of transcendental miracle. Rather, as Tugby argues about platonic universal properties (Tugby, 2016, p. 1160), they do not themselves enter into the events as objects but as underlying the reasons why the world itself behaves as it does. The point is, an object need not have its dispositionality directly transmitted to some state of affairs at some moment in order for it to be real and influential *in some way*.

6.10 The "Effects" of Qualia

A major potential issue with the view I have outlined seems to me to be this: "if phenomenal properties make no difference to proceeding events, how can we even come to know and speak about them? For surely it is their reality that *causes* us to have thoughts about them, whether or not, for example, a reddish sensation can elicit or even slightly influence a motor act." My

answer to this depends on the framework I have already presented: the brain has dispositional powers, and it is these physical-functional states alone that determine the relevant events that *follow*.

Such is the nature of dispositional properties: they are responsible for the change in the states of affairs over time. As has been noted, categorical properties do not logically entail any powers, but in this world they do. All properties other than qualia, are both categorical *and* dispositional. But it must be noted, for a property to exist, it must make some difference to something. It exists after all. In merely existing, it makes the world modified in a way that, without it, the world would be in a different state. This is the kind of difference-making nature I attribute to qualia: they are impotent relative to the future, but not to the present. They modify the brain in a way that it expresses new information, or information presented in a new way. Indeed, perhaps it might be that information presented in a different way, necessarily is *additional information* (and therefore, an addition of being in some minimal objective sense).

One way to think about this is to consider the information at hand. Given that it is plausible that the physical laws alone would be enough for the full range of behaviours people can enact, we could say that all of the information as to why we act that way is contained within the neural matter. That is, if we considered a zombie-like entity[104], say, a functional duplicate of a human made of silicon, in this world, it would thereby behave exactly like a human. It would still speak about how it sees the colour purple, and, I contend, it would even question the metaphysical nature of how red appears as a phenomenal property even though it does not have any phenomenal appearances presented to its mind.

Why and how would this be? My answer relies on Loar's formulation (1990) of the identity theory between physical-functional states and mental properties. Consider its functional states as hardware, analogous to a machine. Now suppose a programme running in it which allows it to identify certain functional states, what we would call "inner states" because it is contained within that entity. It is information that is able to be retrieved later. In other words, the zombie would have a motor ability to speak and act as though the colour red exists in his mind's eye simply because he has the ability to identify certain of his own physical functional states, namely, assumedly, those that were caused by the red spectrum of light. It is,

[104] I say this because it is more palatable to those who say zombies are incoherent. The example I give here is surely plausible to be able to exist even in this world, though a Functionalist may disagree and contend that the silicon body necessarily must have qualia because of its functionality. For the sake of example, let us forgo this latter contention.

then, questioning its physical dispositions, its functional nature, not needing any qualia in this story. I believe that the same goes for humans in this world. We behave as zombies because our mechanisms and forces are identical;[105] it is just that we also happen to have qualia alongside our functional natures.

The question then becomes, if qualia do not do anything, can it even be said that I am seeing redness? For when the zombie says it is, it is not, and surely there is something different between him and me. Here is where the notion of a "simultaneous relationship" is required. In the traditional models about mental causation, M1 (phenomenal state) supervenes on B1 (brain state) and B2 with a supervening M2 follows. The relationship between the first state to the next is one of temporal causation, but what should we make of M1's relation to B1?

I have argued that "Supervenience Physicalism" is an empty notion which is deliberately ambiguous so as not to commit to an interesting ontology, for the purpose of allowing some kind of non-reductionism (whereby if it were cashed out, it would fall under some other kind of ontology such as identity or emergentist). Within the identity theory I proffer, I shall argue that if M1 is some phenomenal property, it has the relationship of an "immediate apprehension" to B1. This apprehension, I argue, is not a process that occurs over a passage over time. It is simply existing with the property instance within some moment in time.

The reason I introduce a new term to explain how the phenomenal property relates to its physical base is that I wish to maintain the following truths: 1) there is an identity of some kind between M1 and B1; second, that 2) a quale makes a difference *to something*, just not in the temporal causal chain that is the series of affairs extending onwards in time. So what does qualia make a difference to if not a causal difference to the next event? It makes a difference to the relevant brain state at every single instance that it expresses it. It is a manifestation of the brain state in some other form of existence that a zombie lacks, namely the phenomenal aspect.

If, according to my exposition, qualia don't make a difference to the future in any sense there remains the question of how phenomenality figures into explanations of behaviour, as anyone including even the eliminativist must have a story to tell. For it is doubtless true to anyone that speaking about mental states are indispensable. Take, for example, the proposition "the smell of garlic made him wince." Those who are realist about the causation of uniquely

[105] Therefore it is *not* like this scenario: imagine in this world a steam train X is moving at 50mph. In the twin world, it is exactly identical to ours, except that the twin-train has no engine, yet it is moving at 50mph. Obviously this does not work because the engine is the required mechanism that provides the force for it to move at 50mph.

mental properties will have it that the smell, how it appeared to the subject, was a power to make him wince. An eliminativist will say that the smell is just a brain state and deny that there is a phenomenal property to it. The reductionist, however, will paraphrase the proposition. The way I have presented my version of reductionism, it would be paraphrase thus: the phenomenal smell is a categorical property of the brain state. The brain state alone has all of the dispositions, and only it has those required to cause the wince."

The paraphrase conveys why it is that we can still talk about mental states *as though* they have powers. It is because of their mode of expressing a powerful object, namely those properties of physics. In a way, the qualia are just ways of picking out the right sort of powers. And indeed, ways of picking out physical powerful states are all they are even when we are instantiating a quale. To smell something is to know, via a sense modality, that you are in some state relative to other bodily states and chemicals in a vast network of olfactory neurons, dispositions of behaviour, etc.

6.11 On the Arising of Phenomenality; its Tie with Function

I believe I have established the following: phenomenality itself is not a dispositional property. Phenomenality is beyond the realm of these inquiries for two reasons: first, because it is a curious type of existence whereby it can only be "seen" (by first-hand experience) by the subject because that subject exists with it. Second, it does not affect its causal profile; that which can make a difference to things and then be observed on the outside by scientists. Science depends on observing functions of objects and processes. But all of this is not to say that there is no important relationship that phenomenality has *with* dispositionality.

I am not arguing that a phenomenal property has nothing to do with the causal profile of its brain state, but quite the contrary. Shoemaker argues (Heil, 2004, p. 225) that a powerless property, e.g. qualia as I have presented its ontology, could vary in its existence without there being a corresponding variation in the inhered object. This is certainly not what I am arguing. The reason why Shoemaker says this might be because he holds the background assumption that: a powerless property hangs in the air as it were, disconnected from everything.

An epiphenomenalist might agree with such an assumption if they suppose that the relationship between qualia and brain is brute. However, in the version of identity theory I am proposing, it is precisely *because* of the causal profile of the object being in that particular way that there is that exact nature of the quale which also inheres in that same object. One doesn't

have C-fibre firings on one day which correspond with a feeling of pain and on another day they produce the sense of hearing a high-pitched note on another day. Now, strictly speaking I am not arguing that the dispositional neurobiological material is what *determines* the nature of the corresponding quale. The Ontology I have presented does not make a bifurcation in this way. Instead, there is a complete profile (which includes but is not exclusively the causal profile) of categoricity in that object which metaphysically determines *both* all its disposition properties and any others there may, i.e. phenomenal ones.

After all, it is no accident that our phenomenal concepts and functional concepts align so perfectly. The concrete physical-functionality and phenomenality of a person are two expressions of one object. The former concerns causal relationships over time and processes, the latter concerns "seeing" them in a different light. For example, describing a phenomenally felt pain as being the reason one lifts his finger has some truth on my account, but must be paraphrased as mentioned above. One has captured his internal functional and physical neural state via his phenomenal property concept. This is at odds with those who assign a novel causal contribution to the quale as, for example, the non-reductionists do. They assert instead that the mental property itself provided power rather than just being a seeing-relationship to the actual power. I say "happens to" because it is a by-product, though intimately correspondent with, the causal and categorical profile of the object. In other words, it does not serve any kind of *end* whatsoever.

Part III: Epiphenomenalism

Epiphenomenalism is the view that mental states are *in and of themselves* ineffectual (See Robinson, 2010). As I have already clarified, for the purpose of this thesis, the "mental" properties or entities in question will be phenomenal qualities (i.e. qualia). Therefore, insofar as I discuss epiphenomenalism, I define it as the theory that "phenomenal properties in and of themselves are ineffectual." Or to put it another way, no behaviour is caused *in virtue of* phenomenal properties. Qualia are caused by physical events but do not have any effects themselves.

Lyons captures this well (2006, p. 77):

"... property epiphenomenalism is the claim that even though a given mental state has causal consequences, it does not have them in virtue of being the kind of mental state it is. To use Horgan's (1989) term, the issue is one of ''quasation,'' of whether psychological states have their effects qua psychological states."

However, as I mentioned in the beginning of Chapter 3, there is also event-epiphenomenalism. This problem is not as relevant because, as I discussed, NRP and reductive physicalism both advocate for token-identity. That being said, I briefly covered how Melnyk's specific branch of NRP does separate mental and physical tokens, the former being realised, not identical with the latter. His theory would suffer from both property and event epiphenomenalism. Furthermore, so would property dualism, panpsychism, etc. My overall concern is merely to establish and defend property-epiphenomenalism.

Heil (2010, p. 174) defines epiphenomenalism as the view that:

"1 mental events (or properties) are distinct from physical events (or properties);
2 mental events (or properties) depend on physical events (or properties);
3 mental events (or properties) lack causal efficacy."

I will take this as a fair summation of the view. Next, Heil provides a diagram of what epiphenomenalism would look like. Each letter represents an event. The letters except for "C" are physical events, while "C" is an epiphenomenal property instance.

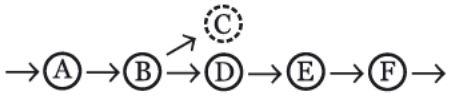

Fig. 3 Epiphenomenalism (Heil, 2010, p. 174)

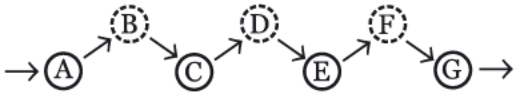

Figure. 4 Interactionism (ibid, p. 175)

The point is that the epiphenomenal quale has a cause but does not have any effects. However, I would parse the situation differently than Heil does. In Figure 3, rather than a diagonal right arrow from B to C, I would instead remove that arrow but put a new arrow facing up from D to C. This is because I do not think B has such a direct contact with C to bring it about. Instead, B directly causes B. Indeed, that is Kim's point (2005, pp. 39-40): P at t1 has M supervening on P. At t2 M* supervenes on P*. Why does M* exist at t2? Because P* necessitates it.

"Given that P* is present on this occasion, M* would be there no matter what happened before; as M*'s supervenience base, the instantiation of P* at t [t2] in and of itself necessitates M*'s occurrence at t [t2]" (ibid, my square brackets).

Analogously applying this to figure 3, C exists because D necessitates it through a supervenience relation (including the dual-aspect relation). On my account, D, exists as having a phenomenal aspect at that time. Minimally, this quale C supervenes on D. That is, C gets its existence solely from D, not from B – although B indirectly caused C to come into existence,

through D. Therefore the reason C exists is because of D, but it was causally produced by the preceding token neural event B.[106]

Now, what are the benefits of Epiphenomenalism as a theory? Heil mentions two points. First, it fits well the causal closure of the physical and the conservation of energy principle. Second, it captures the close tie that is required for a plausible mind-body relationship. I believe that Epiphenomenalism is a better theory than the standard Identity Theory/Phenomenal Concepts Strategy view for the reason that it takes phenomenal properties seriously. These views either ignore qualia or make out as though they are merely different "descriptions" of brain states. If qualia are admitted within an Identity Theory, I argue that since the third-person mode is not identical to the first-person mode of being, they must be formally distinct.

Furthermore, epiphenomenalism accounts for the explanatory gap in a way in which the Identity Theory struggles with. The fact that phenomenal states are supposed to be fully identical with physical states doesn't explain why only the latter has any causal power and can be observed by scientists. Physical sciences lack the methodology to probe into the subjective nature of things, whether that is the categorical essence of something inanimate, or the qualia of something conscious.

My view differs from Heil's insofar as I contend that:

1. The Identity Theory of Properties applies to everything except qualia.
2. Qualia is something additional to the collection of the brain's categoricity.
3. Qualia are uniquely macroscopically emergent: namely, a new ontological kind of being emerges (a mode) from a kind of being that was not in the parts that made it up.

Point (2) is essential. As I argued earlier, the set of all categorical properties of something like a token chair would be just that: a collection of its non-conscious properties. But do this with a brain, the set of non-conscious (e.g. chemicals and atoms) properties and you only end up with something that lacks consciousness. In the same way that a scientist could survey all of the properties of a chair or a brain, they would be missing an element. Therefore there must be an

[106] Consider a metal ball that crushes a boulder after being shot at it. At t2, the boulder is rubble. The cause of the state of rubble was the metal ball in the preceding event. But the rubble has other properties supervening on it such as colour, and this was not caused to exist due to the metal ball.

additional element to just every categorical property that matches 1:1 with every dispositional property. By (3) I mean merely the minimal claim that I reject panpsychism.

This also links to why, though I present something close to an Identity Theory, I am admitting of an extra categorical property that is unique. Unlike other categorical properties it exists as another mode to the conjoined *collection* of dispositional properties of something like a brain. Now, if this is true, there is a sense in which not every single aspect of a mind and brain are identical. This is obviously true because a subjective-perspective is not a third-person perspective. One must at least admit that they are distinct modes of being and it is not purely a linguistic convention.

Dual-Aspect Epiphenomenalism

How does the introduction of "aspects" into the ontology relate to the earlier discussion in Chapter 3 (about C-xyz & D-xyz etc.) and the recent discussion about categoricity and dispositionality? First, regarding the early outline I presented in Chapter 3, I described how a conscious brain would have a set of properties fully describable by an ideal neuroscientist. This set would exhaust all its dispositional properties because those are available to the scientist's observations; D-xyz. That same set of property instances will have a categorical basis, C-xyz. As I mentioned, in a zombie world the situation would be exactly the same so far, because a categorical basis for dispositional properties is not by itself anything phenomenal. According to Heil, the categoricity and dispositionality are just the same property, differently *described* or *considered*.

Now, I argued that this is not *just* a matter of what is differently "considered" for that is too deflationary. Instead, a new ontological category is needed. Bihan (2019) rejects "aspects" as being first order or second order properties. "The sui generis category of aspect is a problem-solver (cf. Benovsky 2010), namely a primitive notion introduced and designed to do some explanatory work" (2019, p. 7).

Consider a pain that one has:

"Being in pain, in this view, is to be an entity with a brain (or similar) in a certain state and to have a qualitative experience of a certain kind, where these two are two aspects of one and the same thing, namely, the pain. The idea here is that I detect and I interact with one thing – my

pain – in two different ways. These are two different aspects of one and the same metaphysical reality" (Benovsky, p, 7, 2015).

I propose the following schema. Consider Max at time t1 experiencing the smell of perfume. Max's being, insofar as it exemplifies qualia, as the relevant state of his nervous system, call it X. {X = *state of person*}. Bear in mind that I am not stating that physicality and phenomenality are incompatible natures. Consider "physical" here to mean "non-phenomenal" material. This event would be described thus:

$X|\ A_{phys} = B(X)$ [physical brain state]

$X|\ A_{phen} = M(X)$ [phenomenal state]

In N(X), B(X), and M(X), X and its constituent property instances are identical.

$A_{phys} \neq A_{phen}$

Key

- X = nexus (neutral entity)
- B = brain state
- M = phenomenal state
- $N(X) = \{p1, p2 \ldots pn\}$ $B(X) = \{b1, b2 \ldots bn\}$ $M(X) = \{m1, m2 \ldots mn\}$
- $b_i = p_i^{A_{phys}}$ $m_i = p_i^{A_{phen}}$
- b_i = a physical property instance m_i = a phenomenal property instance
- p_i = a property instance
- A_{phys}: the physical aspect
- A_{phen}: the phenomenal aspect

My position is that there are two irreducible distinct aspects of the same state of a person. From our first-person perspective we are expressing phenomenality, and experience that in that moment in time. Someone else observing my brain observes that same state of me but via its

bodily expression. Whenever I perform an action, the powers lie within my bodily expression, but I am able to directly experience that same state of my person as phenomenally modified (and the information therein).

This theory is distinct to property dualism. After all, b_i is the set of physical property instances that constitute the nervous system state which corresponds with the conscious experience. This same set of properties is also expressed under a phenomenal aspect, called a quale. On the other hand, property dualism contends that the existence of a quale would be a phenomenal property instance that is a distinct additional property instance to what b_i contains. The quale property instance would not be a member of that set but a member of a distinct set which includes mental property instances.

How should we understand the essence of "N" as the neutral aspect and "X" as the set of neutral properties $\{p_i\}$, of which are expressed as either of the two aspects physical and phenomenal? Bihan offers two ways to understand this. Either (ibid, pp. 5-7):

1. *Realist*. There exists a neutral aspect. It is a third type of aspect, the basis of the physical and mental[107] aspects which also exist.
2. *Anti-realist* about physical and mental aspects. There exists a neutral aspect, but the physical and mental aspect do not exist (i.e. they lack formal reality). They are merely ways of conceptualising the neutral.

Bihan opts for (1). Benovsky "has sympathies with the anti-realist reading" but attempts to keep the theory consistent with (1) and (2) (Benovsky, 2015, p. 8). However, both of these philosophers argue for some form of panpsychism as being the most elegant position. Bihan attempts to overcome the strange implausibility of particles with subjective experiences, and rocks "thinking," by making the following distinction: "phenomenal character" vs "subjective character" (Bihan, pp. 9-10).

The idea is that proto-mental properties exist as aspects of everything that exists, so everything has a phenomenal character. However, that does not mean that everything has a subjective perspective. This latter property is "full-blown mentality" (ibid, p. 9) and is reserved

[107] I prefer the ontology of "physical (third-person)" and "phenomenal (first-person)" aspects but in tune with the language used in the literature here, I shall speak of "physical" and "mental" aspects for the most part.

only for some complex systems; it is a "compositional phenomenon" (ibid, p.10). Therefore, rocks have phenomenal character but do not have a subjective perspective. This solution dissolves the *combination problem* of panpsychism. There are no miniature subjects which add up to one subject; there are proto-phenomenal properties that add up to one subjective perspective.

The problem with this solution, however, is that it is difficult to make sense of a phenomenal character that is not also subjective in nature. To what perspective is this phenomenal appearance present to? Bihan notices the difficulty in this notion but does not consider it too problematic. I believe such a notion is incoherent; phenomenality is by its very essence a subjective experience, otherwise it cannot be phenomenal.

My view differs from Bihan in that I reject panpsychism. Benovsky suggested that one *could* hold in accordance with the dual-aspect monism he presented: "mentality is only associated with some sufficiently complex systems, and that entities that are too simple just do not exhibit any mental aspects and only exhibit physical aspects" (Benovsky, 2015, p.11) but that it would "spoil the monistic idea" (ibid.). Indeed, here is a juncture of a decision to make between two competing theoretical virtues of parsimony vs ideological parsimony. Either have a "simpler" more unified view by adopting panpsychism, or reject it because it is a heavy costly postulation of entities to the theory. I opt for the latter. Furthermore, a motivation for panpsychism would be to attempt to save genuine mental causation, but as I have already argued in favour of epiphenomenalism, I have no such requirement.

How, then, do I make sense of the mental/phenomenal aspect? Firstly, since this view is not panpsychism, I am not claiming that the mental and the physical are equally fundamental. Phenomenal properties arise only from suitably organised physical systems, and nothing in the physical *depends* on the proto-phenomenal or phenomenal. Still, phenomenal properties must come from somewhere, and thus some minimal capacity for phenomenality must be present in the physical base. I label this capacity "proto-phenomenal," and I locate it within the categorical aspect of physical properties. This contrasts with Bihan's view, in which proto-mentality is of the same kind as full-blown phenomenal consciousness (Bihan, 2019, p. 10).

On my proposal, proto-phenomenal properties are a type of categorical property but do not ground the dispositional profiles of physical properties, unlike in Russellian Monism. They are purely categorical, non-dispositional, and non-grounding features, precisely like the phenomenal properties that ultimately emerge from them. Qualia are thus the phenomenal

aspect that arises when the right organisational structure brings together these proto-phenomenal categorical components, without altering the causal closure or dispositional dynamics of the physical.

Lastly, where does the "neutral aspect" fit into my proposed framework? Unlike the two options discussed earlier in this section, I defend a third position not considered by Benovsky or Bihan:

3. The neutral aspect does not exist. Only the physical and mental aspects exist.

Firstly, the reason that I am realist about the two aspects is that, uncontroversially, the physical aspect exists. This is a basic assumption in the naturalistic and scientific worldview. But I also postulate the reality of the phenomenal aspect for the reasons I mentioned earlier about what the problem with the materialist identity theory (from Smart, and the phenomenal concepts strategy) was. Namely, that it ignored the reality of the first-person perspective and it is not just a manner of changing perspectives. It is new distinct kind of mental activity.

Secondly, regarding the neutral aspect, there is no need to postulate a third kind of entity or property in addition to the physical and the phenomenal. My earlier use of the term "neutral" serves only as a logical placeholder, as a way of speaking about the common underlying reality that manifests itself as physical in some contexts and phenomenal in others. The "neutral" label thus marks an epistemic perspective, not an ontological category. It indicates a way of considering a state of an object in abstraction from how it appears under either aspect. In reality, however, the object never instantiates a genuinely neutral aspect; it expresses itself only through the physical or the phenomenal modes. The so-called neutral nature is therefore merely a conceptual vantage point, not a third ontological type.

Objections to Epiphenomenalism

Throughout the discussion of NRP in this thesis there has been the overt avoidance towards epiphenomenalism. They begin with a strong intuition that epiphenomenalism must be false and then proceed to argue around it. I have presented how such accounts fail to preserve any genuine reality to sui generis mental causation. Most of those accounts depended on some notion of "explanation" to save mental powers, but I argued that this is unsatisfactory because explanations are often cognitive and do not necessarily pick out ontological powers. I will now consider various other objections to epiphenomenalism.

Jackson (1982, pp. 133–134) identifies three classic objections to epiphenomenalism and offers responses to each.

1. The hurtfulness objection

It seems obvious that the hurtfulness of pain causes us to avoid it. Jackson replies that this apparent causal link can be reinterpreted as two distinct causes producing a common effect. Just as the movements on a cinema screen are not caused by the characters' actions but by the projector, the aversive behaviour and the hurtfulness of the experience can both derive from an underlying physical base. The appearance of direct mental causation is therefore illusory.

2. The evolutionary objection

If qualia are causally impotent, why would they have evolved, and how could they be so tightly aligned with physical-functional states? Jackson proposes that qualia may be by-products of traits that were selected for, analogous to the heaviness of polar bear fur, which is not itself selected even though thickness is. However, this leaves unexplained what Wright (2015) calls the "appropriateness" of the match. This problem was first mentioned by William James in 1879 and is discussed and defended by Megill (2013). They argue that the links between subjective feel and their associated behaviours do not appear random and that epiphenomenalism seems unable to account for why pain feels aversive, or why pleasure feels attractive, if qualia do nothing.

My view addresses this worry directly. Since I argue that a quale is an aspect of the physical property-instance, expressing itself in a first-person mode, the tight fit is no coincidence. The phenomenal mode is simply the subjective manifestation of a brain state whose third-person dispositional structure already embodies tendencies such as avoidance, attraction, aversion, or salience. The phenomenal character "makes intelligible" from the inside what the physical state already *does* from the outside. This is not a causal link but a non-causal determination relation: the phenomenal mode expresses the same event under a different aspect. As Spinoza (1677) held, mind and body do not interact but are two intelligible expressions of one underlying reality. Nothing here violates causal closure, since the relation is synchronic aspectual determination, not diachronic causal influence.

3. The problem of other minds

If qualia do no causal work, how can we infer that other people have them? Jackson argues that the inference proceeds not from behaviour to qualia directly, but from behaviour to the underlying neural cause, and from there to qualia as the phenomenal aspect of those neural causes. This remains entirely intelligible on the epiphenomenalist picture. I shall now consider more objections than the ones considered by Jackson (1982).

4. Introspection and knowledge

It may seem mysterious how we can know our own qualia if they are causally impotent. However, introspection is a metacognitive physical process. It is a causal chain within the brain that reactivates or re-instantiates the same neural content that originally gave rise to the phenomenality. When I recall seeing red, the phenomenal redness appears again because the relevant neural state is activated again. The quale does not cause the recall but rather merely accompanies the recall as its phenomenal mode. As such, first-person knowledge is secured through physical metacognition, not through causal powers of qualia.

5. Reasons and motivations objection

Another objection is that if qualia lack causal powers, they cannot serve as reasons for action or belief. But we must make a distinction between causal explanation and rational or personal-level explanation. The causal work is performed by the underlying neural states whose phenomenal modes accompany them. The reason we describe pain as aversive is that the neural state it is the mode of plays an avoidance-promoting functional role. The phenomenal "hurtfulness" is simply how that role is encountered subjectively. Qualia are not reasons *in the causal sense*. They are the phenomenal expression of the physical states that supply the causal structure.

6. Phenomenal representation

A related worry is that phenomenal states cannot represent anything if they exert no causal influence. My view is that the process of representation is enacted by third-person neural mechanisms as for example tracking relations, informational content, global workspace integrations, etc. The phenomenal character of experience is simply the categorical manifestation of these representational states. A phenomenal red "represents red" only

because the underlying neural state represents red in a functional way. The representational work is done by the physical and the qualitative aspect is its subjective rendering.

7. “Why this quale” challenge

Finally, critics ask why pain feels painful rather than neutral, or why red has the qualitative signature it does. On my view, phenomenal character is determined by the specific configuration of proto-phenomenal categorical features embedded within the physical state, combined with the organisation of the relevant neurobiological structures. This is not a causal explanation but a determination relation whereby the phenomenal mode is the intrinsic way the brain state is manifested from the first-person standpoint. Nothing in the theory requires the quale to have causal powers; its nature is secured by the underlying physical-categorical basis and the system’s functional architecture.

Main Conclusion

Chapter 1

I began with inquiring into the nature and definition of the "physical." The most promising way to define the "physical" is by reference to scientific practice. Therefore the predicate "physical" depends more on our methodologies and the conventions amongst scientists to use the concept in a particular way. It is a more operationalist definition, one that relies on sociological facts. Nevertheless, it provides a practical way of understanding physicalism and generally fairs better than the other views.

Chapter 2

Here I argued in depth for the causal closure of the physical principle. Lowe (2000) provides a formidable path out of the causal closure of the physical, but at the expense of the rigour and evidence from the success of science.

Chapter 3

I presented many arguments from non-reductive physicalists and found them all inadequate in answering the Exclusion Problem. It seems unlikely that any metaphysics that has the mind non-reductively supervene on a physical base, in accordance with the causal closure of the physical, could have any genuine causal power. This is a problem even for Russellian Monism and Panpsychism.

Chapter 4

In this chapter I presented various kinds of non-reductive metaphysics that I believe are either implausible or not needed. Especially if, as I argued in Chapter 3, that higher-order properties are inert, they are best excised from the ontology. I discussed Functionalism as the main contender out there against reductionism and was said to have dispensed with it long ago. Ultimately, however, all these relations are lacking in important ways. Reductive identity relations are preferable when it comes to causation. Phenomenality cannot be so reduced, even functionally.

Chapter 5

I discussed the epistemology of explanations and how the debate can hopefully be deflated to some extent. Without reifying abstract entities, but instead re-ordering our conceptualisations about behaviour and underlying mechanisms.

Chapter 6

I discussed the nature of properties through the categorical and dispositional divide. They are logically distinct concepts and phenomena, and most philosophers have treated them as such. Heil, however, treats them as metaphysically identical. I agree with his assessment, though I disagree with his unwillingness to admit of the *distinct aspect* of qualia. I find this to be a fault of his theory.

I presented a Metaphysical picture of the world by prying apart what are the causal natures of objects and what are the inner natures. Some philosophers believe that to exist is to have powers, but I argued that this is not necessarily the case. Properties, whether in physics or in consciousness have two sides to them. If we bear this in mind, we will be able to explain what the place of mental properties are whilst still staying true to the fact that all causes and effects in the world seem to be captured by physics.

Physics tells us, sufficiently, about the dispositional character of objects and explains all of the causal production of events that occur. However, there is another side to objects that cannot be accessed by science, namely their categorical nature. Qualia is a purely categorical type of being. I introduced the ontological item of “aspect” to explain what kind of being this is. Panpsychism was rejected. Instead, all types of being are categorical but not phenomenal. Some composite objects also have a phenomenal aspect emerge from their unity. Finally, I considered objections to epiphenomenalism and found them to be unconvincing.

Overall Conclusion

The purpose of this thesis was to argue first, for epiphenomenalism and second, against an unnecessary excess in the inflated ontologies most contemporary philosophers postulate today. That is, they have shunned “reductionist” ontologies, whether in the philosophy of mind, or in Metaphysics about fundamental physical bases that underlie all other entities. It might seem

that there exist entities of a "higher-order," but I have argued that it is more rational and less intellectually risky to avoid postulating them. They seem to be doing no work and are therefore epiphenomenal so why posit them? Qualia are epiphenomenal but the fact that we experience them is good reason to postulate them.

Instead, these higher entities are "higher-level" epistemically, not ontologically. That is, new, different concepts than those used to describe the lower-level entities are usefully employed in order to understand the nature of those same entities (existing only at the fundamental order of being) in a different conceptual scheme or language.

The novel contribution of this thesis was in providing new ways to present a plausible austere ontology of reductionism of all things causal. This was first done by getting clearer on the concept of "physicality." It made use of Stoljar's insight into the dimensions of physical matter which are beyond what the scientist could observe, or anyone could observe. That is, there may be ontological "o-properties" that are physical but beyond the scope of the physicist. He suggests (mentioning Chalmers) that an interesting avenue to develop would be a neutral monism in light of that, which I present later on.

Second, I tackled the issues that are present in contemporary arguments for NRP. They attempt to provide a way for *distinctive genuine* mental causation (namely, causation which was not just within the physical powers) to be real despite the causal closure of the physical. I argued that they all miss the mark. I presented a unique argument called the TCCP which is a problem uniquely for NRP. Therefore, we should adopt a reductive view of Nature. I then argued against the both the empirical and inherent logical problems with non-reductive physicalist metaphysics, i.e. the non-reductive relationships such as supervenience and realisation. The causal exclusion problem is a strong argument which leads to epiphenomenalism.

I provided a new way of tackling the problem of consciousness by adopting concepts from a discussion usually held about the laws of nature and philosophy of science more generally: that is, the idea that all properties have a categorical and dispositional side to them. Given the result of the previous discussions about the mind, I argue that it can be thought of as a purely categorical mode of existence. In that sense, a quale is epiphenomenal. All properties are categorical, but some of them also affect other bodies, such as charge.

Lastly, I presented a new way to understand epiphenomenalism. It makes use of the Metaphysical architecture used by Dual-Aspect Monists. This allows the epiphenomenalist to make sense of the way qualia relates to the body and also allows it to answer objections which

hinge on the coincidental or accidental relation of the quale to the body. I argued that the phenomenal aspect is a type of being beyond what natural science could postulate, but nevertheless must exist. Whether this aspect is "physical" depends on one's semantics; my argument is that it is causally inert.

When we try to inquire about the nature of objects, we often do so from a veil or perspective determined by the "sense" whereas the "referent" seems to have many mysterious modes of existence that cannot be captured by our concepts. For example, we can only understand the property of "charge" in the way it affects other objects. We do not know what the qualitative dimension of it is for that is by nature intrinsic to it. Its dispositional properties, however, can be known to us through its relations of interactions and our inferences based on that behaviour.

This is because we can only see the muddied effect of them, namely suppose object A affects object B. We can only know A's nature by looking at B's nature, but that information already contains with it B's nature too. This is reminiscent of Spinoza's (1677) insight that our knowledge from sensations is confused because the object which caused our sensation has with it its nature but also the mixture of our own. Furthermore, when we perceive any object's effect, we can only interpret those effects which can somehow transmit information our bodies. Dark matter barely does this and so we are very far removed from knowing what its nature is, even within the realm of external dispositional properties.

So too with the mind, The Problem of Other Minds arises because we can only observe other people's physical bodies but not their consciousness. This is because categorical properties are inherent within the objects; they needn't necessarily affect other objects outside of them, and that is the only way for a mind to know about something.[108] The mind insofar as it is qualitative has no way to affect bodies outside of it. Therefore, it is unique in being a new mode of expression, but unlike other properties, it is purely categorical with no dispositional element to itself. Finally, I ended with an analysis of epiphenomenalism and a defence against its main criticisms.

Though the charge epiphenomenalism is often used as a reductio to prove that an argument must have gone wrong, I offer it is as the only viable way to look at the world of causation given what we know. I present a framework which makes use of dual-aspect monism, though without

[108] To know with any reasonable "certainty", that is. After all, Metaphysics will claim we can know about things that have no causal power, for example we can infer from an abduction that Platonic entities exist.

accepting its usual panpsychist twist, as for example in Russellian monism. Therefore it is not so exotic.

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