# MULTI-DESCRIPTIONAL PHYSICALISM, LEVEL(S) OF BEING, AND THE MIND-BODY PROBLEM

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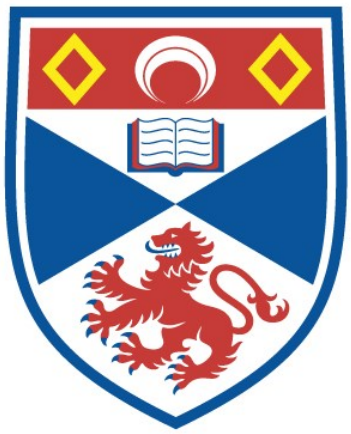
A Thesis Submitted for the Degree of PhD
at the
University of St Andrews



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# Multi-Descriptional Physicalism, Level(s) of Being, and the Mind-Body Problem

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Multi-Descriptional Physicalism, Level(s) of Being, and the Mind-Body Problem

Abstract

The main idea of this thesis is multi-descriptional physicalism. According to it, only physical entities are elements of our ontology, and there are different ways to describe them. Higher-level vocabularies (e.g., mental, neurological, biological) truly describe reality. Sentences about higher-level entities are made true by physical entities. Every chapter will develop multi-descriptional physicalism or defend it from objections. In chapter 1, I will propose a new conceptual reductive account that conceptually reduces higher-level entities to physical entities. This conceptual reductive account combines resources from Heil's truthmaker theory and either a priori physicalism or a posteriori physicalism. In chapter 2, I apply this conceptual reductive account to various debates. Physicalism, the multiple-realisability argument, the prototype theory of concepts, and truthmaker explanations will be discussed. In chapter 3, I will argue that a major aim of metaphysics should be to discover which entities are fundamental and explain why they suffice for the existence of derivative entities. In chapter 4, I will propose a new way to explain why sentences apparently about composite objects are true even though there are no composite objects. It combines resources from Cameron's truthmaker theory and van Inwagen's paraphrase strategy. In chapter 5, I will argue that the intuition that the mind and the body are very different does not show that the mind is distinct from the body. This intuition can be explained away by mentioning our dispositions to give non-physical explanations when we are ignorant of physical facts. In chapter 6, I will examine two arguments for the existence of a metaphysically independent level, and I will argue that only a modified version of one of them succeeds. I will argue that methodological principles support the view that there is a metaphysically independent level.

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Contents

## 0. Introduction

Let's do metaphysics and attempt to discover which objects and properties exist[1]. Following Heil (2003, 2012), I take properties to be particular ways objects are (i.e., modes[2]) and objects to be property-bearers (i.e., substances). For example, a table is an object that possesses certain properties, such as being brown and having a certain shape. In this technical sense, humans are also objects that possess certain properties (e.g., having desires, hands, being moody)[3].

So, which objects and properties exist? There seem to be physical[4], chemical, biological, and mental objects and properties (e.g., quarks, hydrogen, molecules, pain). According to the 'many-levels-of-being view', each of these entities[5] are ontologically distinct[6] from each other. They are an addition to our ontology. Physical entities exist at one level, chemical entities exist at another level, and so on. Higher levels asymmetrically depend on and are not reducible to lower levels. The physical level is the lowest one and determines the rest[7]. The world comprises levels of being because of the aforementioned ontological distinctness and dependence relations (this is a 'hierarchical ontology').

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[1] I follow Heil (2003, 2012) and conceive both objects and properties as fundamental ontological categories.

[2] Heil (2003, 2012) has preferred to talk about modes instead of tropes because the term 'trope' is traditionally used by mereological bundle theorists (i.e., the theorists that believe that the only fundamental category is properties).

[3] Most of my claims will not depend on a specific account of objects and properties. I will mention when this is not the case.

[4] Some philosophers have argued that it is unclear what 'physical' means (see Hempel, 1966, 1969, 1980; Crane & Mellor, 1990). I believe that Dowell (2006) has given an adequate explanation, but I will not discuss this debate. For our purposes, what 'physical' means can be understood through the given examples and what is said in the rest of this footnote that explains the term in a way that is not sufficient to respond to the above objection.
I use 'physical' in a narrow sense that is used to refer only to entities mentioned by current or future physics. A broader sense includes entities that supervene on these narrowly physical entities (e.g., chemical entities and biological entities). According to Noordhof (2010), narrowly physical properties are the *"properties identified by current physics, or a future physics sufficiently resembling our own"* (p.69). Broadly physical properties are the *"properties that stand in a certain highly specific relation of supervenience to the narrowly physical properties"* (p.69).
For ease of exposition, I will assume that the fundamental, physical objects are fundamental particles (e.g., quarks, nucleons). The view that I will develop holds, even if the fundamental, physical objects are quantum fields, or the space-time, or the universe as a whole).

[5] An entity can belong to any ontological category. I will mostly use 'entities' to talk about both objects and properties.

[6] By 'ontologically distinct', I mean non-identical and an addition of being.

[7] Heil (2003) is talking about levels of complexity and levels of being. 'Levels of complexity' refer to entities that are made up of physical entities, but they are nothing over and above the physical entities. 'Levels of being' refer to entities that are over and above what is made up of physical entities.

However, according to the 'one-level-of-being view', there is only one level of being (this is a 'flat ontology'). Only metaphysically independent[8], physical[9] entities are elements of our ontology[10].

One-level-of-being theorists differ on whether they think conceptual reduction is possible. Following Stoljar (2017), I understand traditional conceptual reductive accounts as based on the following: *"Reductionism is true iff for each mental predicate F, there is a physical predicate G such that a sentence of the form 'x is F iff x is G' is analytically true"*. Traditional conceptual reductionists claim that we can do the above conceptual reduction for each mental predicate, and because of that, we have a reason to believe that the mental is identical to the physical. For example, F is conceptually reduced to G, and this gives us a reason to believe that F is identical to G[11]. A fortiori, F is nothing over and above G (i.e., F is ontologically reducible to G). Some conceptual reductionists are one-level-of-being theorists because they claim that all higher-level terms and predicates can be reduced to physical terms and predicates.

Other one-level-of-being theorists (e.g., Heil, 2003, 2012; Cameron 2008a, 2008b, and I) claim that all the higher-level entities are ontologically reduced to the physical level (i.e., they are

[8] X is metaphysically independent, iff X does not metaphysically depend on anything. By 'metaphysical dependence', I refer to any metaphysical dependence relation (e.g., grounding, realisation).

[9] The distinction between many-levels-of-being views and one-level-of-being views presupposes the truth of physicalism. See section 1.2 for some reasons to be physicalist.

[10] If, as current physics suggests, quarks depend on each other for their existence, at least in a modal-existential sense (see Giannotti, 2020), we should explain one-level-of-being views differently. One-level-of-being theorists should not claim that only metaphysically independent, physical entities are elements of our ontology. Instead, they should claim that only physical entities are elements of our ontology, at least some physical entities metaphysically depend on each other for their existence, but it is never the case that physical entities bring about the existence of a new entity that metaphysically depends on them for its existence and creates a new level.
A new level is created, if some entities, Xs, bring about the existence of a new entity, Y, and Y occupies the same space as the Xs at the same time.
Alternatively, one-level-of-being theorists should claim that physical entities exist at a level and do not metaphysically depend on a different level (not even a different physical level). They are metaphysically independent level-wise because they do not metaphysically depend on another level, even if they are metaphysically dependent entity-wise because they metaphysically depend on other entities. One-level-of-being theorists could say that only metaphysically independent level-wise physical entities are elements of our ontology. In what follows, I ignore this complication for the sake brevity.
Giannotti's (2020, p.584) solution is to define 'fundamental' in a new way. I will define 'fundamental' in a different way from him, and so, I deal differently with the possibility of quarks depending on each other for their existence. The issue is merely terminological.

[11] Conceptual reduction does not entail ontological reduction though. Even if we can conceptually reduce F to G, there may be a reason to conceive F as ontologically distinct from G.

nothing over and above[12] the physical entities), even though they cannot be conceptually reduced in the above way[13]. They cannot be conceptually reduced because a higher-level predicate can have multiple actual or possible physical truthmakers. The truthmakers are the objects and properties that make true our sentences[14]. Still, these theorists claim that there is another way to show that Fs are Gs, even though Fs cannot be conceptually reduced to Gs.

Suggesting a new one-level-of-being view will be a main aim of this thesis. I call this view 'multi-descriptional physicalism'. Multi-descriptional physicalism is the view that only metaphysically independent, physical entities are elements of our ontology and there are different ways to describe these physical entities. These different ways correspond to different kinds of vocabularies (e.g., chemical, biological, mental). These are legitimate ways to describe the physical because they pick out imperfect similarities. For example, a mental predicate can be applied to a range of different physical properties[15] because it picks out certain imperfect qualitative and dispositional similarities. There is no reason to infer different levels of being from different levels of explanation. My view explains why different levels of explanation are used and why they are legitimate, even if there is only one level of being. I am inspired by Heil and Cameron, but I give more attention to the pragmatic dimensions of our language than them.

I will also argue that even though the aforementioned traditional conceptual reduction is impossible, a weaker conceptual reduction is possible. This conceptual reduction mentions some actual truthmakers of sentences about a higher-level entity and makes it clear what is the similarity

[12] As noted by Bennett (2017), the phrase 'nothing over and above' is slippery. *"Sometimes the phrase is used to mark that one phenomenon depends on another; sometimes it is instead used to state an identity"* (p.35). I will use it to say that a higher-level phenomenon exists, but it is not ontologically distinct from physical phenomena and that sentences about this higher-level phenomenon are made true by physical phenomena. As I will explain in chapter 1, I believe that this is the case, even though I do not identify the higher-level phenomenon with physical phenomena. It may sound a bit odd to say that non-identity does not imply ontological distinctness, but I will argue that there are ways to show that higher-level phenomena are nothing over and above the physical phenomena even though higher-level phenomena cannot be identified with physical phenomena.
On the other hand, I claim that if X is over and above Y, then X is ontologically distinct from Y; i.e., X is an addition of being.

[13] Gillett (2007) has presented, but not endorsed, a one-level-of-being view that is ontological reductionist even though it does not provide traditional conceptual reductions.

[14] While developing my view, I will talk about sentences being made true by physical entities, but similar remarks could be stated about utterances or beliefs being made true by physical entities.

[15] I think that only metaphysically independent, physical entities are elements of our ontology. But for the sake of brevity, sometimes, I will not mention the metaphysical independence. For example, when I claim that mental properties are ontologically reducible to physical properties, 'physical properties' should be taken as a shorthand for 'metaphysically independent physical properties'.

between them in the physical level of description. This similarity explains why the higher-level entity is ontologically reducible to physical entities[16].

Multi-descriptional physicalism is the view that motivates this thesis. In all chapters, I give reasons to believe that we are ontologically committed only to the physical and the physical entities make true every true higher-level sentence. Both positive arguments and responses to objections are mentioned.

I will use a deflationary conception of 'existence'[17]. According to it, something can exist, even if we are not ontologically committed to it. For example, desires exist, even though desires are not additions to being. X exists, iff there are true sentences about X[18]. There are true sentences about X, iff an entity or entities make true these sentences. For example, 'There is a table' can be true because there are particles arranged in a certain way and these particles make true this sentence. Something over and above the particles is not needed to make true this sentence. So, I will say that higher-level entities exist, even though they are no addition to being. Instead, higher-level entities are ontologically reduced to metaphysically independent, physical entities that are an addition to being.

Similarly, I will say that higher-level entities are causally relevant because they are ontologically reduced to metaphysically independent, physical entities that are causally relevant and an addition to being. For example, higher-level properties have causal powers because these properties are ontologically reducible to metaphysically independent, physical properties that have causal powers.

Similarly, for 'entities'. If higher-level entities exist, we should not infer that these entities are over and above the metaphysically independent, physical entities. Higher-level entities could be ontologically reducible to these physical entities. We can talk about higher-level entities without being committed to additional entities. For instance, a true sentence about *a* higher-level object does not need to pick out *one* object. It may pick out *many* objects.

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[16] Even though ontological reduction does not entail traditional conceptual reduction, it entails weak conceptual reduction.

[17] As we will see, John Heil (2003, 2012, chapter 1) and Ross Cameron (2008a, 2008b, chapter 2) also use this deflationary conception.

[18] *"When you ask about the existence of things, when you ask whether there are trees, or planets, or cassowaries, for instance, you are asking, in effect, whether judgements concerning such things are true"* (Heil, 2012, p.166).

When I am talking about higher-level entities existing, I am talking about high concerning levels of description, abstraction, or complexity. I am not implying the existence of different levels of being. *Ontologically irreducible* higher-level entities do not exist. *Ontologically reducible* higher-level entities do exist. We could also say that higher-level objects are quasi-objects and higher-level properties are quasi-properties (see section 1.5 and Heil, 2012).

A different conception of 'existence' is 'X exists, iff X is an addition of being' or 'X exists, iff we are ontologically committed to X'. This is an inflationary conception of 'existence'. Talking about the existence of a certain thing always has certain ontological implications.

I prefer the deflationary conception of 'existence' because it distinguishes between sentences about an entity that have truthmakers and sentences about an entity that do not have truthmakers. If something exists, sentences about it pick out something. They pick out something, even if it is not the thing that is implied. For example, 'A table exists' is true, even though it picks out *many* simples. 'A unicorn exists' is false because it does not pick out anything.

The dispute between the deflationary and inflationary conception of 'existence' is merely terminological. If someone prefers the inflationary conception of 'existence', my arguments can be reformulated. I will talk a bit about one such reformulation in section 3.9.

My view can be developed as a contextualist view. For example, in ordinary contexts, 'Tables exist' is true because a deflationary use of 'existence' is used. In metaphysical contexts, 'Tables exist' is false because an inflationary use of 'existence' is used. This contextualist view is inspired by van Inwagen (1990) (see section 4.2).

Now we have seen that there are different metaphysical views: one-level-of-being views and many-levels-of-being views. How do we decide which view is true? One way to decide which view is true is to consider theoretical desiderata/virtues, such as simplicity, uniformed explanations, and inference to the best explanation. For example, all else equal, we should accept the simplest theory. We should do so because the theoretical desiderata/virtues (i.e., the methodological principles) are considered guides to the truth.

But why should we consider them as guides to the truth? Let's consider simplicity, but similar remarks can be given for the other theoretical virtues. Different arguments were given for

the claim that simplicity is a guide to the truth (see Kelly, 2004; Paul, 2012; Brenner, 2017). I will not argue in detail for this claim, but I will give some prima facie plausible reasons to believe it.

There is a pragmatic reason to follow this theoretical virtue: if we do not rely on it, we are led to scepticism concerning most of our beliefs and hence, our beliefs cannot lead us to action. We rely on this virtue all the time. Both in science and everyday life, we use this virtue to decide between competing theories. All else equal, we prefer the simpler theory. For example, when I hear what sounds exactly like the voice of my friend, I assume without hesitation that my friend is nearby. I cannot exclude all the possible alternatives, but I prefer this assumption. For instance, I cannot exclude that a robot from the future, travelled to the present, killed my friend, and now imitates his voice. If I do not follow the simpler assumption and I cannot decide between the alternative assumptions in any other way, then I cannot act based on any of them. This can be generalised to all of our beliefs, and we are led to scepticism about them if we cannot trust the theoretical virtue of simplicity. Without theoretical virtues, we cannot decide between competing theories and hypotheses. As a result, these theories and hypotheses cannot influence our actions. So, I think it is a good idea to consider them as guides to the truth and continue reasoning through them because we cannot choose between competing theories, hypotheses, and actions otherwise.

Additionally, there is an inductive argument for relying on simplicity. If sceptical possibilities are not actual (such as that we are a brain in a vat), these theoretical virtues provide us with correct predictions most of the time in science and everyday life. For example, it was actually my friend that was nearby. When I smell perfume, it is because somebody close to me is wearing perfume. I do not smell perfume because an alien is manipulating my brain by sending certain signals and making me smell unreal things. The simpler explanation is the true one in these cases and in most of the situations we face. So, we can conclude that the methodological principle of simplicity guides us to the truth most of the time.

Consider again the one-level-of-being view and the many-levels-of-being view. The one-level-of-being view has the theoretical advantage of being ontologically simpler. There are fewer ontologically irreducible entities out there if this view is correct. Higher-level entities are no addition to being. There are many levels of description (i.e., different ways to describe the physical entities), but just one level of being. All else equal, we should endorse the simpler view. Therefore, we have a good reason to accept this view.

But are all things actually equal? This thesis aims to argue for an affirmative answer. To do this, many different issues will be considered.

In chapter 1, I will suggest a new conceptual reductive account that can motivate reductive physicalism. This reductive account combines resources from Heil's truthmaker theory and either the a priori entailment view or a posteriori entailment view. It will be argued that every higher-level property can be conceptually reduced to physical properties, and because of that, we have a reason to believe that higher-level properties are ontologically reduced to physical properties.

In chapter 2, I will apply this new reductive account to other debates (multiple-realisability argument, physicalism, ontological free lunches, prototype theory of concepts, and Cameron's truthmaker theory). It will be argued that it can be used to reject the multiple-realisability argument, formulate a physicalist thesis, and explain why higher-level entities are ontological free lunches. Additionally, it will be shown that it can be combined with the prototype theory of concepts and Cameron's truthmaker theory.

A metametaphysical normative view is that metaphysics should be about discovering which entities are fundamental (i.e., which entities exist and are addition of being) and explaining why other entities are derivative (i.e., why other entities exist but are no addition of being). I call this view the 'Fundamental/Derivative Distinction Thesis'. Multi-descriptional physicalism relies on the truth of this metametaphysical view. In chapter 3, I will give an argument for this metametaphysical view.

An argument against my one-level-of-being view is that this view cannot explain why sentences about higher-level objects are true even though there are no composite[19] objects. In chapter 4, I will argue that we can explain why sentences about higher-level objects are true without postulating the existence of composite objects. This will be done by combining the resources of Cameron's truthmaker theory and van Inwagen's paraphrase strategy.

There is an intuition that the mental properties and the physical properties are very different. Some people are persuaded by it and claim that mental and physical properties must be

[19] I use 'composite object' in a metaphysically robust sense that makes is it debatable whether composite objects exist. In this sense, a composite object is something over and above its parts. In a deflationary sense, it may be correct to say that some objects always compose another object, but I will not use 'composite object' in this way.

distinct. A fortiori, physicalism is false. Papineau attempted to explain away this intuition by mentioning the difference between using our phenomenal and physical concepts. In chapter 5, I will argue that Papineau's view fails because possessing our concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness. Still, the intuition of mind-brain distinctness can be explained away differently: it is caused by our nature and nurture in a way that is not truth-conducive.

Until the last chapter, I will presuppose the truth of metaphysical foundationalism (all the chains of metaphysical dependence terminate in metaphysically independent entities, or all metaphysically dependent entities are fully grounded in metaphysically independent entities). In chapter 6, I will examine two arguments for the truth of metaphysical foundationalism. I will argue that one of them fails (the one concerning the viciousness of infinite regresses) and a modified version of the other one succeeds (the one concerning methodological principles).

To sum up, in this thesis, I will give some positive arguments for one-level-of-being views and reject some arguments against them. Conceptual reduction that motivates ontological reduction is a nice place to start, and this is what I will talk about in the first chapter.

## 1. Conceptual Reduction without Unique Necessary and Sufficient Conditions: A Truthmaking Approach

### 1.1. Introduction

So far, I have presupposed that physicalism is true. But why should we believe that? Two different reasons to be physicalists were suggested by type-A physicalism (i.e., a priori physicalism, a priori entailment view) and type-B physicalism (i.e., a posteriori physicalism, a posteriori entailment view)[20]. According to type-A physicalism, we can infer a priori (i.e., knowable independent of empirical experience) all higher-level truths from physical truths, and this shows that physicalism is true. On the contrary, type-B physicalists believe that the aforementioned inference is a posteriori (i.e., knowable but not independently of empirical experience), but it still shows that physicalism is true (section 1.2).

If either type-A physicalism or type-B physicalism is true, certain metaphysical questions are still open. Are higher-level entities ontologically reducible to the physical entities or are they ontologically distinct from the physical entities? While reductive physicalists say that higher-level entities are ontologically reducible to the physical, non-reductive physicalists say that higher-level entities are ontologically distinct from the physical. How can we decide?

Some reductive physicalists argued that we can conceptually reduce every higher-level truth to a physical truth, and this gives us a reason to believe that the mental is identical to the physical (section 1.3). They argue that we can ontologically reduce mental properties to physical properties because of the existence of conceptual entailments between the two domains (that involve necessary and sufficient conditions). Remember that for Stoljar (2017), some conceptual reductive accounts are based on the following: *"Reductionism is true iff for each mental predicate F, there is a physical predicate G such that a sentence of the form 'x is F iff x is G' is analytically true"*. This is giving a necessary and sufficient condition for the application of a mental predicate by presenting a physical predicate. The mental predicate applies to reality iff the physical predicate

[20] Views that claim that reductive explanations are analytical truths and physicalism is true are called 'type-A physicalism'. Views that claim that reductive explanations are empirical truths and physicalism is true are called 'type-B physicalism'. Chalmers (1996) introduced this distinction.

applies to reality. It is claimed that if we can conceptually reduce a mental property to a physical property, then the mental property is identical to the physical property.

However, other philosophers argued that this kind of conceptual reduction is impossible, and I agree with that (section 1.4). For each mental property, it seems that beings with different physical properties can possess it. For instance, a human, a dog, a cat, and an alien can be happy even though they do not have a physical property in common that it can be identified with the property of being happy. Noticing this possibility motivates some people to advocate non-reductive physicalism. According to non-reductive physicalism, mental properties are irreducible to physical properties.

On the other hand, I believe that we have good reasons to search for a viable reductive physicalism. Non-reductive physicalism faces problems with describing satisfactorily the nature of the metaphysical dependence relation that holds between higher-level entities and physical entities (for problems of supervenience, see Heil, 1998; for problems of grounding, see Wilson, 2014; see also Elpidorou, 2018, for problems of many different dependence relations)[21].

Additionally, the ontological simplicity of reductive physicalism motivates me to search for another kind of conceptual reduction.

I will argue that even though traditional conceptual reductions cannot be done, another kind of conceptual reduction can be developed (section 1.6). It combines resources from the truthmaker theory (section 1.5) and either the a priori entailment view or the a posteriori entailment view. Even if we cannot do traditional conceptual reductions, conceptual reduction can be done in another way. We can infer all higher-level truths either a priori or a posteriori from physical truths, and we can explain why different physical properties are truthmakers of sentences about a higher-level property by using the notion of similarity (these truthmakers are less-than-perfectly similar). This shows why a higher-level phenomenon ('higher' concerning description or abstraction) is nothing over and above the physical. Even though we cannot identify a mental property with a

[21] Recently Wilson (2011) and Gillett (2002, 2010) have given accounts of realisation that try to deal with these problems, but following Morris (2019), I think that these views also face problems. I will briefly provide some further problems in section 3.5.2. The main issue is that these accounts of realisation fail to show that the higher-level entities are causally relevant.

physical property, a mental property is ontologically reducible to various less-than-perfectly similar physical properties because the above conceptual reduction is possible.

I will start this chapter by describing type-A physicalism, type-B physicalism, traditional conceptual reductive accounts, and problems with the latter. Then, I will describe truthmaker theory, a view that reductive physicalists can endorse. After, I will argue that we can use resources from the aforementioned theories to develop a new conceptual reductive account (what I will call 'Weak Conceptual Reduction').

## 1.2. Type-A Physicalism and Type-B Physicalism

I will suggest a new conceptual reductive account that presupposes the truth of physicalism. Because of that, I will describe two kinds of physicalism: Type-A Physicalism (i.e., a priori physicalism, a priori entailment view) and Type-B Physicalism (i.e., a posteriori physicalism, a posteriori entailment view). If either of these two kinds of physicalism is true, my conceptual reductive account can be used to motivate reductive physicalism. Given the truth of type-A or type-B physicalism, two metaphysical views are viable: (a) higher-level entities metaphysically depend on and are ontologically distinct from physical entities, (b) higher-level entities are ontologically reducible[22] to physical entities. My conceptual reductive account can be used to argue that higher-level entities are ontologically reducible to the physical. But first, let's examine Type-A and Type-B physicalism.

Type-A physicalism and Type-B physicalism differ on whether phenomenal concepts[23] have a priori connections to physical or functional concepts.

Type-A physicalism *"is the thesis, roughly, that the non-physical truths in the actual world can be deduced a priori from a complete physical description of the actual world"* (Witmer, 2006, p.185). According to it, physicalism is true because every truth is conceptually entailed by PTI (P:

[22] X is ontologically reducible to Y, iff X is nothing over and above Y. If X is ontologically reducible to Y, then X is no addition of being. Truths about Xs do not require any new commitments regarding what exists. In other words, if X is ontologically reducible to Y, then Y exists and is an addition of being, and X exists but is no addition of being.
[23] Phenomenal concepts are *"distinctive, subjective, 'what it's like' concepts of these states that we (normally) acquire by experiencing them"* (Levin, 2008, p.402).

physical truths, T: a that's all truth[24], I: indexical truths) truths. For example, we can conceptually infer a phenomenal truth Q from PTI, iff Q can be derived a priori (i.e., using only logic and conceptual truths) from PTI. Armstrong (1968, 1970, 1977) and Lewis (1966/1983, 1972, 1980/1983, 1994) are reductive physicalists that endorsed Type-A physicalism (even though they did not use this label) because they believed that the aforementioned a priori inferences can be done.

On the other hand, type-B physicalism gives us a different reason for why physicalism is true. *"Type-B materialism is the thesis that though phenomenal states are necessarily identical with physical states, phenomenal concepts have no a priori connections to physical or functional concepts"* (Levin, 2008, p. 402). Because of this conceptual independence, we cannot determine whether a state falls under a phenomenal concept just by knowing a complete physical description of it or determining what role it plays in the production of someone's behaviour.

Still, according to Type-B physicalism, physicalism is true because every truth is entailed by PTI truths + a posteriori knowledge (see Block & Stalnaker, 1999; Hill, 1991, 1997; Hill & McLaughlin, 1999; Levin, 2008; Loar, 1990/1997; McLaughlin, 2001; Papineau, 2002). Given the physical truths, we can know a posteriori every truth. For example, given the physical truths, we can know a posteriori that being in pain is identical to (realised by, supervenient upon, or ontologically reducible to) a physical property.

Of course, it is controversial whether type-A physicalism or type-B physicalism is true. I will presuppose that one of them is true because I want to focus on examining whether given the truth of physicalism, higher-level entities are ontologically reducible to physical entities[25].

If every higher-level truth is entailed a priori or a posteriori from physical truths, physicalism is true. If we can do such an entailment and physicalism is true, two metaphysical views are viable: (a) higher-level entities metaphysically depend on and are ontologically distinct from physical

[24] T is a "that's all" statement which asserts that our world is a minimal world satisfying PI. Alternatively, we could say that T is a second-order "That's all" fact.

[25] See Block & Stalnaker (1999), Byrne (1999), and Elpidorou (2014) for reasons to believe that type-A physicalism is false. For a recent defence of type-A physicalism, see Witmer (2006).
See Chalmers (1996, 2007), Chalmers & Jackson (2001), Goff (2011), and Levine (2007) for reasons to believe that type-B physicalism is false. Elpidorou (2016) and Levin (2008) have defended type-B physicalism from these objections.

entities, and (b) higher-level entities are ontologically reducible to physical entities. So, given that we have decided that physicalism is true, a further metaphysical task is to decide which of the above metaphysical views about higher-level entities is true. One way to do this is by conceptually reducing every higher-level entity to physical entities. If conceptual reduction can be done, we have a reason to believe that higher-level entities are ontologically reducible to physical entities. In the next section, I will examine traditional ways of doing this conceptual reduction.

### 1.3. Strong Conceptual Reduction

Before presenting conceptual reductive accounts, it is important to distinguish between 'unique necessary and sufficient conditions' and 'non-unique necessary and sufficient conditions' (this distinction helps us to recognise the difference between my conceptual reductive account and older conceptual reductive accounts).

A predicate M has unique necessary and sufficient conditions, iff there is only one way to state the necessary and sufficient conditions for applying M to reality. For example, 'X is M, iff X is P' is a unique necessary and sufficient condition because there is not another way of stating necessary and sufficient conditions for something to be M. Different ways mention different independent truthmakers of sentences about M. Using different words to talk about a truthmaker does not count as different ways to state necessary and sufficient conditions. In the above example, there is no other way to state the necessary and sufficient conditions because there are no other independent truthmakers of sentences about M.

What I mean by 'independent' can be clarified through an example. 'X is in pain, iff X's C-fibres fire' and 'X is in pain', iff X's simples are arranged C-fibres-fire-wise' mention two different truthmakers of 'X is in pain'. Nevertheless, the existence of C-fibres depends on the existence of its simples. That is why C-fibres and their simples do not count as two different *independent* truthmakers.

It needs to be emphasised that different ways of stating necessary and sufficient conditions for something to be M mention *only* different independent *truthmakers* of sentences about M. A constraint on unique and non-unique necessary and sufficient conditions is that only the truthmakers of sentences about an entity must be mentioned. For example, X is in pain, iff X's C-

fibres fire and 2+2=4' is a true biconditional but it does not count as a way to state the unique necessary and sufficient conditions for somebody to be in pain because it includes an irrelevant part ('2+2=4'). This part is not a truthmaker of a sentence about being in pain.

This is how I define 'unique necessary and sufficient conditions'. On the contrary, a predicate M has non-unique necessary and sufficient conditions, iff there are multiple different ways to state the necessary and sufficient conditions for applying M to reality. For example, suppose that something can be M in virtue of many different physical properties. So many that it is very difficult for a human to state them. It is very difficult (or even impossible) to state them because humans may not know all of them or it would take a lot of time to state them. Still, necessary and sufficient conditions can be given by stating some of the truthmakers of sentences about M and presenting a way to find other truthmakers. For instance, necessary and sufficient conditions about M can be stated in different ways: 'X is M, iff X is P or Q or R or possesses a property similar to P, Q, and R' is one way. 'X is M, iff X is A or B or C or possesses a property similar to A, B, and C' is another way. These different necessary and sufficient conditions are correct ways to give the necessary and sufficient conditions concerning the correct application of predicate M. We know some of the truthmakers of sentences about M, and we can state necessary and sufficient conditions based on them. 'Possesses a property similar to…' is something that plays a big role in my conceptual reductive account, and it will be explained in detail in section 1.6.

Traditional conceptual reductions can be understood as giving unique necessary and sufficient conditions (even though this terminology is not used) for the truths of one domain by describing truths in another domain. However, I will use 'conceptual reduction' in a broader sense. In this sense, conceptual reduction can occur whenever truths about one domain are explained by stating truths in another domain independently of whether unique necessary and sufficient conditions are provided. This is combined with the idea that if we can conceptually reduce all truths about one domain to truths about another domain, then statements about the former are made true by the entities that are mentioned by the latter. 'Conceptual reduction' will be used in this broader sense in what follows. I will do so because I distinguish between Strong Conceptual Reduction (SCR: CR involves unique necessary and sufficient conditions) and Weak Conceptual Reduction (WCR: CR does not involve unique necessary and sufficient conditions, but it involves non-unique necessary and sufficient conditions) and I want to argue that while SCR cannot be done for many

higher-level properties, WCR can be done. In this section, I will describe some SCR accounts, and in the next section, I will give a reason to believe that we cannot do this kind of conceptual reduction for many higher-level properties (many higher-level properties are correlated with multiple physical properties).

As I have already mentioned in the introduction of this thesis, following Stoljar (2017), I understand some traditional conceptual reductive accounts as based on the following: *"Reductionism is true iff for each mental predicate F, there is a physical predicate G such that a sentence of the form 'x is F iff x is G' is analytically true"*.

For example, Lewis (1966/1983) has believed that mental properties are conceptually reduced to physical properties, this conceptual reduction is an analytic truth, and it reveals the truth of the identity theory. Lewis' argument for the identity theory *"is this: The definitive characteristic of any (sort of) experience as such is its causal role, its syndrome of most typical causes and effects. But we materialists believe that these causal roles which belong by analytic necessity to experiences belong in fact to certain physical states. Since those physical states possess the definitive characteristics of experience, they must be the experiences"* (Lewis, 1966/1983, p.100).

For a specific mental state, the argument for psychophysical identification can go like this:

*"mental state M = the occupant of the M-role* [a certain causal role] *(by analysis)*

*physical state P = the occupant of the M-role (by science)*

*therefore M = P*[26]*"* [by transitivity of =] (Lewis, 1994, p.418)[27].

For Lewis (1966/1983, 1972), science and the meanings of words are sufficient to deductively infer psychophysical identifications. There is no need to mention the theoretical virtue of parsimony in order to posit these identifications.

Other conceptual reductive accounts conceive conceptual reductions as empirical truths. An influential, traditional, conceptual reductionist is Ernest Nagel (1961). According to him,

[26] According to Lewis (1994, p.419-420), if there is variation in what occupies the M-role (i.e., if M is different states in different actual cases), then our psychophysical identities need to be restricted. 'M = P' should be replaced by M-in-K = P, where K is a kind, such as humans, within which P occupies the M-role. I will describe this view in more detail in section 2.2.4.1 and give an objection to it.

[27] A similar reductive account and an argument for the identity theory can be found in Kim (2005, p. 101-102).

*"*[r]*eduction* [...] *is the explanation of a theory or a set of experimental laws established in one area of inquiry, by a theory usually though not invariably formulated for some other domain"* (p. 338). When the reduced theory and the reducing theory are using heterogeneous terms to describe phenomena, the reduction can happen through bridge laws. Bridge laws connect terms or expressions of the reduced theory to terms or expressions of the reducing theory. For example, the occurrence of the state of affairs signified by a theoretical expression 'B' in the reducing theory is a necessary and sufficient condition for the state of affairs designated by 'A' in the reduced theory. By using these laws and the terms of the reducing theory, the laws of the reduced theory can be derived. Broadly speaking, for every term 'A' in the reduced theory, there is a theoretical term 'B' in the reducing theory such that A and B are linked by a biconditional: A if and only if B. If there is such a linkage, 'A' can be replaced by 'B' in any law of the reduced theory in which 'A' occurs. A law of the reduced theory then is deducible from the reducing theory combined with these biconditionals. This kind of derivability is both necessary and sufficient for reduction. The bridge laws are hypothesised because they are supported by empirical evidence.

The above conceptual reductive accounts are examples of what I call 'Strong Conceptual Reduction'. According to these accounts, F can be conceptually reduced, iff unique necessary and sufficient conditions concerning the correct application conditions of the predicate 'F' can be given (e.g., 'being F' is true about an object iff 'being G' is true about an object). For the purposes of the distinction between SCR and WCR, it does not matter whether the conceptual reduction is a priori or a posteriori (an epistemological issue).

## 1.4. Problems with Strong Conceptual Reduction

I think strong conceptual reduction is impossible because many higher-level properties are correlated with multiple physical properties. The following thesis is relevant:

Multiple Correlation Thesis (MCT): Many higher-level properties are correlated with multiple actual or nomologically possible physical properties[28].

[28] This is inspired by the multiple-realisability argument (see Putnam, 1967/1975; Block & Fodor, 1972; Fodor, 1974, 1989), even though they use it to argue for non-reductive physicalism. I will use it to argue for my version of reductive physicalism. This argument will be described in chapter 2.

A higher-level property is correlated with a physical property if we have a reason to believe that the higher-level property occurs because[29] of that physical property. We might have inferred either a priori or a posteriori all truths about that higher-level property from physical truths about that physical property, and this gives us a reason to believe that the higher-level property occurs because of that physical property. If a higher-level property occurs because of a physical property, this can be the case because the higher-level property metaphysically depends on the physical property or it is ontologically reducible to the physical property.

An example of the MCT may be the property of being in pain. It is very likely that the mental property of being in pain is correlated with multiple actual or nomologically possible physical properties. Humans with normal brains, humans with silicon-based brains, dogs, cats, and aliens are in pain, despite not having a physical property in common that it can be identified with the property of being in pain. Still, whenever a dog is in pain, he is in brain state $B_1$. Whenever a cat is in pain, she is in brain state $B_2$. Similarly for other animals that are in pain. So, being in pain is correlated with many different physical properties.

By 'nomologically possible physical properties', I mean physical properties that are compatible with actual natural laws. A robot that is in pain may not exist, but it seems that it could exist in our world: it seems compatible with the actual natural laws. If we were more technologically advanced, we could make it.

MCT is neutral on whether this correlation shows that a higher-level predicate refers to something irreducible to the physical. MCT may hold because each multiply-correlated, higher-level property is irreducible to the physical and realised by various physical properties or because sentences about it are made true by various less-than-perfectly physical properties.

I said 'many' in MCT because some higher-level properties are correlated with only one physical property. Consider the higher-level predicate 'is in human pain in St Andrews at 20:00 in the actual world'. It seems possible that this predicate applies only to one person. So, we can identify the property of being in human pain in St Andrews at 20:00 in the actual world with a

[29] This is compatible with property dualism. For example, Chalmers (1996) might say 'pain occurs because c-fibre firing occurs, and there is a natural law linking c-fibre firing and pain'. Still, at this point in the dialectic, I assume that physicalism is true. So, we should decide between reductive physicalism and non-reductive physicalism.

physical property. Still, ordinary higher-level properties seem to be correlated with multiple actual or nomologically possible physical properties.

It could be argued that a mental property can be conceptually reduced to a finite disjunction of physical properties (e.g., $p_1$, or $p_2$, or $p_3$). However, I believe that it is likely that a mental property is correlated with so many physical properties that conceptual reduction to a finite disjunction is impossible (or at least very difficult). It is impossible because humans, with their limited resources, cannot know so many properties. Even if we knew them, it would take a lot of time to express all these different properties.

A way to show that is by mentioning sorites-like considerations. Suppose that being in pain is correlated with the firing of C-fibres in humans. Still, someone could be in pain even if a slightly different brain state occurred. If one of the C-fibres did not fire and a different but very similar fibre fired, we could still be in pain. The same for another very small change and so on, until it is uncertain whether someone is in pain. We can express similar considerations by mentioning very small changes in materials. It seems likely that if someone is in pain and we replace one of their neurons with silicon, they will still be in pain. Another small change will not change that and so on, until it is uncertain whether they are in pain. Even if we do not call the vague cases 'pains', many different physical properties can definitely be called 'pains'. Similar considerations can be expressed about other animals and materials, and this makes it very likely that a mental property is correlated with an enormous number of physical properties. This seems even more likely when we consider the simples that make the brain states that count as pains and how slight variations in the arrangements of these simples do not exclude someone from being in pain.

Believing MCT might have motivated some philosophers to suggest the multiple-realisability argument (see chapter 2). Its conclusion is that mental properties are irreducible, functional properties: each mental property occupies a specific causal role and is realised by various physical properties, but it is not identical to them. This results in the endorsement of non-reductive physicalism and functionalism (mental properties are functional properties). For example, being in pain is the higher-level property of being in some state or other that plays the pain role.

As I have briefly mentioned in the introduction, I am attracted to reductive physicalism because (a) non-reductive physicalists do not describe satisfactorily the nature of the metaphysical

dependence relation between higher-level entities and physical entities, and (b) reductive physicalism is ontologically simpler. Because of that, instead of accepting non-reductive physicalism, I will examine the truthmaker theory, a reductive physicalist view, and suggest that its resources can be used to develop a different kind of conceptual reduction (WCR). I will argue that reductive physicalism is compatible with MCT because WCR can be done (a non-reductive physicalist would say that reductive physicalism is incompatible with MCT). I will also argue that WCR gives us a reason to be reductive physicalists instead of non-reductive physicalists.

## 1.5. Truthmaker Theory

Truthmaker theories are suggested to solve certain metaphysical debates. Their main claims are:

(TT1) Sentences about X can be true, even if there is not an entity X that makes true all these sentences.

(TT2) Sentences about X can be made true by various less-than-perfectly similar entities.

For example, a truthmaker theory can be used to argue that a one-level-of-being view is true, and sentences about higher-level entities are true despite that because they are made true by physical entities.

I will describe John Heil's (2003, 2012) truthmaker theory because I am inspired by some of his remarks about similarity to suggest WCR. Heil has argued that we can be realists about higher-level entities, even if we deny that reality comprises levels of being[30]. For example, realism about states of mind does not require that either states are higher-level entities or talk of states of mind can be linked analytically to truth-makers for such talk. Heil (2003) has rejected the following analytical principle *"(A) (Where Gs are presumed to be uncontroversial items—those posited by the physical sciences, for instance—and Fs are putatively higher-level items) if talk of Fs cannot be analysed, paraphrased, wholly decomposed into talk of Gs, either Fs are distinct from Gs or there are no Fs"* (p.51). He proposed his view as an alternative account of the higher-level

[30] Heil (2003) has rejected many-levels-of-being views because of the causal-exclusion argument (see chapter 3). My WCR can be another reason to endorse a one-level-of-being view.

phenomena that does not appeal to a sui generis relation among levels of being or conceptual reduction.

Heil (2003) has believed that even if there is only one level of reality, irreducible predicates that are used in everyday domains and special sciences can be accommodated. He has claimed that the world consists of simples and their properties that stand in certain relations to each other. Arrangements of particles satisfy our predicates. There is an ontological reduction, but this does not imply conceptual reduction. Still, there are levels of description or explanation or, alternatively, levels of complexity or organisation. For example, sociology and psychology are higher-level sciences, and chemistry and physics are lower-level sciences. However, those levels do not imply or entail levels of being.

The main claim of Heil's (2003) truthmaker theory is that sentences about an entity X can be true, even if it is not the case that there is an entity that corresponds to X and only instances of this entity make true these sentences. This theory is applicable both to properties and objects. For example, sentences about desiring to drink water can be true, even if they are not made true by instances of the same property all the time. Instead, they may be true in virtue of a range of less-than-perfectly similar properties.

Heil (2003) has argued that we use the same predicate to describe different objects because these objects are similar in some respects (not similar simpliciter). Talk of respects is property talk. Objects are similar by virtue of possessing similar properties. However, properties are not similar in virtue of something different from them. Properties are similar to each other because of the contribution they make to the dispositional and qualitative character of their possessors.

An alternative way to think about higher-level objects and properties is as quasi-objects and quasi-properties. Heil (2012, 2013c) has claimed that we can understand complex objects as substances in a relaxed sense: quasi-substances. Characteristics of complex objects are properties only in a relaxed sense: quasi-properties. There is nothing in addition to, nothing over and above simple substances possessing particular properties that stand in particular relations to one another. In a metaphysically robust sense of objects (substances, property-bearers) and properties (modes, ways objects are), only fundamental physics reveal the objects and properties that exist. The substances may be particles or quantum fields or there may be just one substance such as the space-time or the cosmos.

For Heil (2012), truthmaking is an internal relation between a truth bearer (e.g., a sentence, an utterance, an assertion, a statement[31]) and a truthmaker (e.g., a way the world is, a state of affair, simples arranged in a certain way). Internal relations hold in virtue of intrinsic features of their relata. If you have the relata, you thereby have the relation. For example, if you have a truth bearer and a truthmaker, you thereby have the truthmaking relation. The truthmaking relation is not something distinct from a truth bearer and a truthmaker.

The same can be said about a sentence being true (Heil, 2012). The truth of a sentence is not something over and above the sentence and its truthmaker. Given the universe as it is and the sentence as it is, you thereby have the sentence's being true.

Heil (2012) has considered the truthmaking idea as utterly fundamental: *"something we all grasp immediately in grasping the notion of truth, a notion we are unlikely to be in a position to explicate in simpler, more transparent terms"* (p.168).

## 1.6. Weak Conceptual Reduction

Even though Heil did not talk in these terms, he can be understood as rejecting the possibility of conceptual reduction because of MCT. Still, in this section, I will suggest a different conceptual reductive account that is inspired by some of his remarks about similarity.

Before doing that, I will briefly examine another conceptual reductive account that can lead us to my weak conceptual reductive account. It could be claimed that a mental property can be conceptually reduced to an infinite disjunction of physical properties. This disjunction lists some of the truthmakers of sentences about that mental property (e.g., $p_1$, or $p_2$, or $p_3$, or….). This view was suggested by Kim (1992) (see section 2.2.4.2).

However, Heil (2003, p.40) has argued that reduction by an infinite disjunction is problematic. If we identify a higher-level property with an open-ended disjunction of lower-level properties, it is unclear how we can find out whether other cases satisfy the predicate related to

[31] Following Heil (2003, 2012), I deny the existence of propositions because they do not have any explanatory value. Still, the views and arguments developed in this thesis do not depend on specific truth bearers.

this property. A purely disjunctive characterisation of a property seems to be a mere list (see section 2.2.4.2 for further objections against disjunctive reduction).

Nevertheless, I think that another kind of conceptual reduction is viable and makes it clear how we can find out whether currently unknown cases satisfy the predicate related to this property. I think an interesting result happens when we combine an infinite disjunction with the notion of similarity.

I take similarity as primitive, and even though taking similarity as primitive is usually associated with conceiving properties as tropes or modes, it can also be combined with an ontology of universals. One motivation for conceiving properties as universals, which goes back to Plato, is to explain why different entities are described the same way. For example, universalists claim that different objects are called 'red' because they possess the same universal (the universal of being red). I think that less-than-perfect similarity between modes or universals can also explain why we call different objects 'red', even if there is not one property that all of these objects share. Still, someone may be universalist because they believe that universals explain the existence of regularities (as Armstrong (1983) has done; I will present his view in section 3.4.1.). I am sympathetic to this reason to accept the existence of universals, but I think that modes that are both qualitative and dispositional can also explain the existence of regularities (Heil (2003, 2012) has argued so; see section 3.4.3). Following Heil, this view may be preferred for other reasons such as that it takes fewer things as primitive. Still, I leave it open that this view may be rejected for a different reason.

My conceptual reductive account does not depend on any specific metaphysical theory about properties. I prefer an ontology of modes, but I think my conceptual reductive account can be used even if the universal theory of properties is true. I take properties as a fundamental ontological category for independent reasons (see Sosa, 1984; Armstrong, 1989; Gibb, 2006). Still, a nominalist about properties that explains similarity between objects in a different way may be able to use a slightly changed version of my conceptual reductive account to conceptually reduce higher-level objects to physical objects.

I will call 'weak conceptual reduction' (WCR) any conceptual reductive account that does not give unique necessary and sufficient conditions for the conceptual reduction of an entity, but it provides another way that conceptual reduction can be done (non-unique necessary and sufficient

conditions). I believe that weak conceptual reduction is possible, and it can show that higher-level entities are ontologically reduced to metaphysically independent[32], physical properties. My conceptual reductive account combines resources from the truthmaker theory and either the a priori entailment view or the a posteriori entailment view. It is weak because it allows a higher-level predicate to have multiple actual or nomologically possible truthmakers and involves the notion of similarity.

We may be able to weakly conceptually reduce a mental property to various physical quasi[33]-properties. Even though these properties are physical, they are not elements of our ontology. These quasi-properties are easy ways that we can use to describe the metaphysically independent, physical properties that are elements of our ontology. Still, I will argue that weakly conceptually reducing a mental property to various physical quasi-properties brings us closer to the actual truthmakers of our sentences and shows why a mental phenomenon is merely physical.

For example, consider the predicate '*m*' that purports to refer to the mental property of being happy. It can be weakly conceptually reduced in the following way: A quasi-object O possesses quasi-property *m*, iff it possesses $p_1$ or $p_2$ or $p_3$ or any other similar physical quasi-property[3435]. Imagine that neuroscientists recognised that when humans or animals are happy, they have one of the above quasi-properties. For example, $p_1$ could be a physical quasi-property of a human[36]. It seems possible that these quasi-properties will have certain similarities with each other. They may have less-than-perfectly similar structures and because of that, they affect less-than-perfectly

[32] Just a reminder that X is metaphysically independent, iff X does not metaphysically depend on anything. By 'metaphysical dependence', I refer to any metaphysical dependence relation (e.g., grounding, realisation).
[33] I use 'quasi' in the same way as Heil (2012, 2013c) (see section 1.5). Quasi-objects and quasi-properties are 'quasi' because they are not as metaphysically robust as metaphysically independent, physical objects and properties (i.e., while quasi-objects and quasi-properties are not elements of our ontology, metaphysically independent, physical objects and properties are elements of our ontology). Still, sentences about them are made true by metaphysically independent, physical objects and properties.
[34] A reason to believe that O is a quasi-object is that we can do this kind of conceptual reduction for all its properties. It is very dubious that objects that do not do any causal work are additional elements in our ontology (see section 3.6).
[35] An alternative conceptual reduction could be stated by someone that believes that neural properties are irreducible to metaphysically independent, physical properties. For example, an object O possesses *m*, iff it possesses $n_1$ or $n_2$ or $n_3$ or any other similar (broadly) physical property ($n_1$, $n_2$, and $n_3$ are neurological properties). Even if I am wrong that only metaphysically independent, physical entities are elements of our ontology, there is still use for WCR.
[36] Do we need a composite object, which is a thinker, to explain why there are thoughts? Van Inwagen (1990) has answered affirmatively. Following Sider (2013, p.268-269), I disagree.

similarly their objects. We can understand why different quasi-objects possess *m*, even though this is not happening in virtue of one higher-level property. This shows that even if we cannot mention all the possible truthmakers of sentences about *m*, we can explain why different quasi-objects possess *m*.

Weak conceptual reductions should be given by following three constraints:

(a) No irrelevant disjuncts. All the disjuncts should be truthmakers of sentences about the reduced property. The aforementioned biconditional could be true because some of the disjuncts make true sentences about *m*. But the irrelevant disjuncts do not show why a mental phenomenon is physical, and so, they should not be included.

(b) Actual conceptual reduction. The antecedent and consequent should only mention actual properties. It should not be the case that the biconditional is true because possible properties are mentioned. Weak conceptual reduction is about the actual world.

(c) The stated truthmakers must be paradigm cases. Paradigm cases are definitely truthmakers of sentences about a higher-level property. If we stated the above weak conceptual reduction and included borderline cases (i.e., cases that it is vague whether they count as truthmakers of sentences about a higher-level property), there would be a property similar to a borderline case that would count as a truthmaker of a sentence about a higher-level property even though it is definitely not a truthmaker.

How are we led to the above weak conceptual reduction? We accept that there are certain truths about *m* and discover that we can infer some of them either a priori or a posteriori from the physical truths about $p_1$ or $p_2$ or $p_3$. We notice that these physical quasi-properties have certain similarities between them, and these similarities explain why truths about these different physical quasi-properties entail truths about *m*. We can list the similarities and use them as a guide to discover whether other properties are truthmakers of sentences about *m*. The similarities can be described by using a physical vocabulary, and this gives us a reason to believe that the mental phenomenon is nothing over and above the physical. In other words, why different beings possess a mental property can be explained by simply stating physical truths and the similarities between different physical quasi-properties. This motivates the belief that the mental is ontologically reduced to the physical.

Even though we cannot give unique necessary and sufficient conditions for the correct application of a mental predicate and the mentioning of similarity may make someone hesitant to call the view developed here 'conceptual reduction', I call this view 'conceptual reduction' because it lists different physical properties and similarities that are associated with a higher-level predicate, and it involves a priori or a posteriori entailment. I think it counts as a conceptual reduction, but it does not matter anyway. WCR can be called 'truthmaker reductive explanation' instead. The crucial claim is that WCR/truthmaker reductive explanations motivate ontological reduction.

Conceptually reducing a mental quasi-property to physical quasi-properties can lead us closer to the truthmakers of sentences about the former. Each physical quasi-property mentioned above is merely properties of physical simples (e.g., properties of quarks arranged in certain ways). It seems very unlikely that we will be able to weakly conceptually reduce *m* to its different physical truthmakers because of the enormous number of simples involved. Still, reducing it to physical quasi-properties reveals how *m* is actually just something physical. Even reducing *m* to neurological quasi-properties could help us to understand why the mind is just a physical phenomenon. It gets us closer to the physical truthmakers and as a result, it may give us an idea of why mental properties are merely physical properties.

There is not only one way of conceptually reducing *m. M* could be conceptually reduced because as above, we know that $p_1$, $p_2$, and $p_3$ are actual quasi-truthmakers of sentences about *m. M* could also be conceptually reduced if we knew other quasi-truthmakers of sentences about *m* (e.g., $p_4$, $p_5$, and $p_6$). So, the biconditional "A quasi-object O possesses quasi-property *m*, iff …" can be completed in different ways.

WCR is not a mere list of truthmakers of sentences about a higher-level property. It can help us to find out whether currently unknown cases satisfy a higher-level predicate. The physical similarity between the different truthmakers can be a tool that helps us to find out whether new cases are truthmakers of sentences about a higher-level property. So, it solves the problem, suggested by Heil, of the infinite disjunction reductive view.

For example, we can identify some truthmakers of sentences about a table and notice that they are all simples arranged in similar ways. They were arranged this way because it was intended that they will be used to satisfy certain desires (e.g., put drinks and food on top of them). This reveals

what kind of characteristics new arrangements of simples must have to serve as truthmakers of sentences about a table.

If a higher-level entity is conceptually reduced to various less-than-perfectly similar physical entities, not just any similarity between different truthmakers is relevant. A variety of properties can be similar in virtue of being located on Earth. But that is not what we are looking for when we attempt to conceptually reduce something. We are not concerned with similarity *simpliciter*. We are concerned with similarity in certain respects. In the case of being happy, we are concerned with similarity in respects that make it the case that whenever someone has a physical property similar enough with certain physical properties, it is correct to describe them as 'being happy' even if there is no irreducible property of being happy. We attempt to find out the similar physical respects that make it the case that a mental phenomenon does not need to be something over and above the physical[37]. 'Respects' should not be understood as properties of properties or aspects of properties. Respects are what we get when we abstract from particular properties and focus on certain ways to partially consider these properties.

The relevant physical similarities may be structural similarities[38]. It may be correct to describe different animals as 'feeling pain' because they possess less-than-perfectly similar structural physical properties. Their simples are arranged in less-than-perfectly similar ways and that is why they have less-than-perfectly similar structural physical properties.

All the truthmakers of sentences about a mental property may appear perfectly similar when we consider them abstractly. But it does not follow that there is an irreducible, structural, mental property. I will argue for this in chapter 2.

So, what exactly is the role of similarity? Assume that type-A physicalism is true, and we can use it to deduce *m* truths from $p_1$, $p_2$, and $p_3$ truths[39]. $P_1$, $p_2$, and $p_3$ are some of the actual truthmakers of sentences about *m*. The a priori entailments give us a reason to believe that physicalism is true. The multiple physical correlates of *m* may lead us to endorse non-reductive

[37] There may be other reasons to postulate the existence of irreducible mental properties. But given the lack of such reasons, these physical similarities give us a reason to ontologically reduce the mental to the physical.
[38] They may also be qualitative similarities in the case of phenomenal properties. This is compatible with physicalism if physical properties are powerful qualities (see Heil, 2003, 2012).
[39] Remember that WCR can be done even if type-B physicalism is true. The only difference is that higher-level truths will be inferred a posteriori from physical truths.

physicalism. But adding the truthmaker theory to the a priori entailments leads us to WCR, and WCR motivates reductive physicalism. The similarity in the physical level is sufficient to explain why mental properties are ontologically reducible to physical properties. The physical can explain everything we want to explain, and we do not need to assume the existence of something ontologically irreducible to explain why *m* is correlated with different physical properties. The physical similarity shows that despite the physical dissimilarities between $p_1$, $p_2$, and $p_3$, we do not need to assume the existence of something ontologically irreducible to the physical to explain why the beings that are in $p_1$, $p_2$, or $p_3$ possess the mental property *m*.

The similarity can be described abstractly by considering an abstract physical structure or an abstract physical causal role. This abstraction (i.e., partial consideration[40]) allows us to ignore the differences between the various physical truthmakers and explain why a mental phenomenon is nothing over and above various less-than-perfectly similar physical phenomena.

For example, consider sentences about a table. We can see how truthmakers of sentences about a table are just simples arranged in similar ways by considering abstract physical structures. One of these structures could be found by thinking about the shape that we get when we combine four legs and a top. We can move closer to the truthmakers of sentences about a table by talking about the small physical things that make these legs and the top[41]. We can talk about physical objects that are not metaphysically independent, but they bring us closer to the metaphysically independent, physical truthmakers. Our descriptions of the truthmakers of sentences about a table are not in metaphysically independent, physical terms, but they make it clearer why these truthmakers can be just simples arranged in certain ways. For example, if simples are arranged four-legs-wise and top-wise, then the predicate 'is a table' applies to reality (even though there is not a composite object).

Concerning abstract physical causal roles, the physical similarity can be less-than-perfect, and less-than-perfect similar physical causal powers can be involved because of that. The similarity

[40] Following Heil (2003, 2012, 2013c), I agree with Locke that 'abstracting' is 'partially considering' something. According to Heil (2013c), we are abstracting when we consider ways a ball is (e.g., the ball's redness). We also abstract when we consider a ball as a property bearer. A ball and ways it is can be separated in thought, but not in reality. Substances cannot exist without properties, and properties cannot exist apart from substances.

[41] Alternatively, if waves or fields are fundamental, we should talk about them. Remember that I assume that particles are fundamental just for ease of exposition.

could be described by listing several physical causes and effects associated with a mental phenomenon. The different physical truthmakers have some of these causes and effects and that is why they can correctly be called 'm'.

The abstract similarity also shows why nomologically possible cases are also physical. Only the physical similarity is needed to explain why these cases are merely physical and why they can correctly be described as 'm'.

Going back to talking about different accounts of conceptual reduction, there is another difference between WCR and SCR. WCR, unlike SCR, can be incomplete. That is, while SCR has to mention *the* actual physical property that is the truthmaker of sentences about a mental property, WCR does not. Knowing *some* actual physical quasi-properties that are the truthmakers of sentences about a higher-level property and recognising the physical similarities between them is all we need to make a weak conceptual reduction. We can weakly conceptually reduce a higher-level property to physical properties if we know enough quasi-truthmakers of sentences about this higher-level property that make us realise what is the similarity between them and what other possible quasi-truthmakers of sentences about this property should be like to be quasi-truthmakers of sentences about this property.

A surprising issue arises in the case of WCR + a priori entailment view. Even though we can use conceptual entailment to do the particular conceptual reductions (e.g., we can infer a priori from 'O has $p_1$' that 'O has *m*'), we need a posteriori methods to get to the whole aforementioned biconditional ('A quasi-object O possesses quasi-property *m*, iff it possesses $p_1$ or $p_2$ or $p_3$ or any other similar physical quasi-property'). Why should we think that similar physical properties will also be truthmakers of sentences about *m*? Because of their similarity! The methodological principle of simplicity and inference to the best explanation can be used to argue that similar properties will behave in similar ways. If certain physical properties count as cases of *m* and have certain similarities with each other, the best explanation for this phenomenon is that they count as cases of *m* because of this similarity. So, it seems that other less-than-perfectly similar physical properties will also be cases of *m*. The simpler explanation of how these properties will behave is that they will behave like the other similar properties that are known to us. There is a surprising combination of a priori entailment view + methodological principles. I do not find this result problematic. There is still work for the a priori entailment view to do.

To sum up, I have proposed a new account of conceptual reduction (WCR). According to it, we can conceptually reduce a higher-level property to various less-than-perfectly similar physical properties, if we can infer either a priori or a posteriori all higher-level truths about this property from physical truths and the physical similarity between the physical properties explains why the higher-level property is not something ontologically distinct from them (it is high only concerning levels of abstraction/description, not levels of being). If this kind of conceptual reduction can be done for each higher-level property, then we have a good reason to believe that all higher-level properties are ontologically reduced to physical properties. In the next section, I will clarify my view concerning some related issues.

## 1.7. Clarifications about WCR

In this section, I will briefly talk about some issues related to WCR that will clarify my view even further.

To begin with, while some reductive views are one-to-one, WCR is one-to-many. The difference is about truthmakers. Consider type identity theory, an example of one-to-one reductive view. According to it, a mental property *m* is conceptually reduced to a physical property *p*, iff *m* occurs iff *p* occurs. If this reduction is possible, a mental predicate about *m* has only one actual and possible truthmaker.

However, WCR is a one-to-many reductive view. That is, one predicate has or can have multiple truthmakers. For example, 'being happy' can have many actual or nomologically possible physical truthmakers.

Second, it could be asked whether my view is Type-A or Type-B Physicalism. Remember the example of WCR that was given above: A quasi-object O possesses quasi-property *m*, iff it possesses $p_1$ or $p_2$ or $p_3$ or any other similar physical quasi-property. Is this conceptual reduction an analytic or empirical truth? The point arises concerning the particular reductions of *m* to $p_1$, *m* to $p_2$, etc. WCR can be combined with either the a priori entailment view or the a posteriori

entailment view. It is independent of them. What adds is that we have to use the notion of similarity to find out which entities are reduced to other entities[42].

Furthermore, I want to emphasise that ontological reduction does not entail identity (see chapter 3 for a more detailed discussion of this claim). I have argued that if we can weakly conceptually reduce a mental property to various physical properties, then we have a good reason to believe that the mental property is ontologically reducible to those physical properties (i.e., it is nothing over and above those physical properties). But of course, it cannot be identical to just one of them or all of them. If mental properties are functional properties, a mental property should not be identified with just one of these physical properties because all of these physical properties occupy the causal role associated with that mental property. It should not be identified with all of them, because one mental property cannot be identical with different properties at different times (if X is identical to Y, then X exists iff Y exists). Instead, we should say that sentences about a mental property are made true by various less-than-perfectly similar physical properties.

Moreover, I claim that mental predicates do not have strict application conditions and as a result, they can apply to a variety of less-than-perfectly similar physical properties. An opponent may admit that and argue that we should revise (or replace) our mental predicates so they will have stricter application conditions. By doing that, we will be able to identify mental properties with physical properties. I think this can be done but we will not use the ordinary way of talking about our mental lives anymore. So, we still have to give a metaphysical account of our folk psychological talk. WCR can be such an account.

Additionally, speakers' evidence for the existence of a higher-level (high concerning levels of abstraction and description) property do not need to be the truthmaker of sentences about it, and speakers do not need to know what the truthmaker is to use the relevant word successfully. For example, we claim that other people are in pain because we notice certain traits in their behaviours (e.g., they say 'Ouch' or go away from the cause of pain or do certain expressions). But it does not follow that behaviours like these are the truthmakers of our sentences about people feeling pain. What actually makes true these sentences are certain brain structures or certain neurons that fire.

[42] Chalmers & Jackson (2001, p.350-351) have claimed that the multiple-realisability of a higher-level phenomenon entails its ontological irreducibility to the microphysical, even if we can infer all truths about it from microphysical truths. I believe that this is not the case. An a priori entailment theorist can accept multiply realisability about a phenomenon and still be ontological reductionist about it. WCR may persuade them to do so (see chapter 2).

We can pick out these truthmakers with our sentences, even if we think incorrectly that the truthmaker is an immaterial soul.

Finally, I could be asked to explain how reference works in my view. I think that a mental predicate refers to many physical properties. One may object that a mental predicate that mentions *a* mental property cannot refer to *many* different properties. I do not find this line of thought persuasive, but anyway, my view can be modified to respond to this objection. I can say instead that WCR shows that mental properties are nothing over and above the physical. Mental predicates do not refer to anything. Still, sentences about mental properties are made true by physical properties.

## 1.8. Conclusion

It is believed that conceptual reduction involves giving unique necessary and sufficient conditions. However, I have argued that if we use a broader notion of 'conceptual reduction', a new conceptual reductive account can be provided. WCR combines resources from the truthmaker theory and either the a priori entailment view or the a posteriori entailment view to give us a reason to be one-level-of-being theorists. I have argued that if every higher-level property can be weakly conceptually reduced to physical properties, we have a reason to believe that higher-level properties are ontologically reduced to physical properties. WCR is not only useful for providing a new conceptual reductive account. It can also be applied in other metaphysical debates, and this is what I will do in the next chapter.

## 2. Weak Conceptual Reduction and its Applications

In this chapter, I will apply WCR to other metaphysical debates. WCR can help us to engage in a new way with topics such as the multiple-realisability argument, physicalism, ontological free lunches, Cameron's truthmaker theory, and the prototype theory of concepts.

### 2.1. WCR and Multi-Descriptional Physicalism

To begin with, I will talk about physicalism and why WCR can help us to develop a viable account of physicalism. This account can show us why Heil should be a physicalist instead of a neutral monist.

#### 2.1.1. Multi-Descriptional Physicalism

The metaphysical view that I advocate in this thesis can be called 'multi-descriptional physicalism'. It is what inspired me to develop WCR. According to multi-descriptional physicalism, only metaphysically independent, physical entities are elements of our ontology. There are different ways to describe them (i.e., we can use different vocabularies to describe them). We can describe the physical entities by using a mental vocabulary, a biological vocabulary, a chemical vocabulary, etc. Those higher-level vocabularies do not refer to irreducible entities. WCR can be understood as a way to show why sentences about higher-level entities are true even though there are no irreducible, higher-level entities.

However, Heil, despite being a truthmaker theorist and believing that everything is made true by fundamental physical entities, has not endorsed physicalism. He has thought that physicalism is true, iff we can conceptually reduce every higher-level truth to physical truths. He has thought that this conceptual reduction cannot be done, and as a result, he rejected physicalism.

I will argue that Heil and the rest of us have two reasons to be physicalists. First, WCR can be used to motivate physicalism. Even if the traditional, conceptual reduction cannot be done, WCR is something close enough that can show us why the physical is privileged. Second, other accounts of physicalism have certain similarities with Heil's metaphysical view, and these similarities should persuade him to endorse physicalism.

### 2.1.2. John Heil, Physicalism, and Neutral Monism

Heil (2013b, p.24) has agreed with Spinoza and Davidson that the mental-physical distinction is only a distinction of conception. It is not an ontologically deep distinction. For Heil, his view is not a physicalist one. The physical is not privileged. Mental events have also physical descriptions, and physical events have also mental descriptions. However, conceptual reduction is impossible. Worldly goings-on can be described by using different vocabularies. We use different vocabularies for different purposes. There is not just one correct way to consider the world. We can describe what is going on by using the vocabulary of fundamental physics. Additionally, we can use the vocabulary of special sciences to refer to broad similarities and differences, and consequently, we can understand and predict features of our world. Similarities and differences that are mentioned by physics and special sciences are objective and mind-independent. *"If physicalism is the doctrine that every truth about the world could be expressed in the vocabulary of fundamental physics, then this is not physicalism"* (Heil, 2013b, p.30). Heil (2013c) has named his view 'neutral monism'.

This view should be distinguished from Russellian monism. Heil has not claimed that there are fundamental, intrinsic properties and the physical, extrinsic, dispositional, properties arise out of them or are grounded in them. Instead, he has believed that physical properties, which are both qualitative and dispositional, are the fundamental properties, but there is nothing privileged about them.

Heil (2013a) has argued that we "*regard physics as privileged not because it gives us the only true description of reality or a description of a reality into which all other descriptions are translatable but because it provides a self-contained 'closed' account, one that makes salient the world's causal structure"* (p. 90). Physics gives us a basic description of the world that includes truthmakers for every other description. Statements about tables, trees, and intentions are often true. This is not because tables, trees, and intentions exist over and above the arrangements of quarks and electrons. But rather, *"*[o]*nce God has created the quarks and electrons and distributed them in space and time, God has thereby created truthmakers for our talk of tables, trees, and intentions"* (p.90).

### 2.1.3 Physicalism and WCR

I think that what motivated Heil to be a neutral monist is the Multiple Correlation Thesis that we have seen in the previous chapter:

Multiple Correlation Thesis (MCT): Many higher-level properties are correlated with multiple actual or nomologically possible physical properties.

Heil has believed that conceptual reduction cannot be done because this thesis holds and conceptual reduction is one-to-one (it conceptually reduces one higher-level property to a lower-level property). But we have already seen that there is another kind of conceptual reduction available (WCR). I think WCR provides us with a reason to be physicalists.

Heil believes that all truths about the world that have truthmakers are made true by how things are physically. It is a surprise that he is not a physicalist. He could be understood as conceiving physicalism in the following way:

Physicalism is true, iff *every higher-level truth is conceptually reduced to a physical truth*.

Heil thinks that Strong Conceptual Reduction is the only viable kind of conceptual reduction. However, I think that there is another viable kind of conceptual reduction (WCR). WCR can be done, and this gives us a reason to be physicalists. We can associate a mental property with various physical properties. We can infer a priori or a posteriori every higher-level truth from physical truths. We can list the similarities between different physical truthmakers, and this can help us to recognise new truthmakers of sentences about a mental property. I think WCR reveals why the physical is privileged[43]. We can understand physicalism as the following thesis:

Physicalism is true, if every higher-level truth that has truthmakers is *weakly* conceptually reduced to physical truths.

[43] A different objection to physicalism, mentioned by Heil, is that the mental-physical distinction is a conceptual distinction, not an ontological one. However, what I will argue for in chapter 3 can be used to argue against this objection. My argument for the fundamental/derivative distinction thesis shows that not all ways to describe reality are equal: there are fundamental entities that are additions of being and there are derivative entities that are no addition of being. The fundamental entities are physical, and as a result, the physical vocabulary picks out the fundamental structure of reality. A fortiori, the mental/physical distinction is not a mere conceptual distinction.

I added 'weakly' because WCR is the kind of reduction that can be done for every higher-level truth that has truthmakers. We could change 'if' to 'because' to show that physicalism is true because of the stated reason. Alternatively, we could remove 'weakly' to state a more general thesis. I avoid this because I want to show why exactly physicalism is true.

If we agree with the above physicalist thesis, then we should be physicalists. WCR does not give us as much as SCR, but it gives us enough to show that the physical is privileged. Heil has a reason to endorse physicalism because conceptual reduction can be done.

I need to emphasise here that according to multi-descriptional physicalism, while some sentences about non-physical or higher-level entities are true, no sentence about the existence of anti-physical entities is true. Following Elpidorou (2018, p.436), *""Non-physical" does not mean anti-physical, i.e., entities the existence of which is inconsistent with the truth of physicalism* [for example, immaterial angels, ectoplasmatic lions, and Cartesian souls]. *Rather, "nonphysical" denotes things or entities that (a) are not found in the descriptions of the current (or slightly modified future) physics and (b) are assumed to exist contingently and concretely in our world"*. Something is 'non-physical', if it is not physical but it is connected with the physical entities in a way that does not create any problem for physicalism.

### 2.1.4 Truthmaker Theory and Various Physicalist Accounts

In the previous section, I have suggested a new truthmaking account of physicalism. In this section, I will argue that other accounts of physicalism, even if they are wrong, can motivate Heil and the rest of us to be physicalists. Even though a truthmaker theorist rejects accounts of physicalism that mention the realisation relation, the supervenience relation, and the grounding relation, some of the remarks of these accounts can be used to motivate physicalism. These accounts show why the physical is privileged.

Heil's view implies that if we cannot conceptually reduce higher-level properties to physical properties, then physicalism is false. But this is not how many physicalists understood their view. Many physicalists would reject Heil's conception of physicalism. There are other formulations of physicalism that reveal why the physical is privileged, even though strong conceptual reduction is impossible.

To begin with, for Jackson (1998), physicalism can be stated as a contingent global supervenience thesis[44]:

> *"Physicalism is* […] *the claim that if you duplicate our world in all physical respects and stop right there, you duplicate it in all respects; it says that*
>
> *(B) Any world which is a minimal physical duplicate of our world is a duplicate simpliciter of our world*
>
> *Where a minimal physical duplicate is what you get if you 'stop right there'.* […] *Thus, a minimal physical duplicate of our world is a world that (a) is exactly like our world in every physical respect (instantiated property for instantiated property, law for law, relation for relation), and (b) contains nothing else in the sense of nothing more by way of kinds or particulars than it must to satisfy (a). Clause (b) is a 'no gratuitous additions' or 'stop' clause"* (p.12-13).

Loewer (2001) has added the following idea to the above definition of physicalism: *"the fundamental properties and facts are physical and everything else obtains in virtue of them"* (Loewer, 2001, p. 39). For him, physicalism is compatible with the existence of nonfundamental higher-level objects and properties that are not reducible or identical to physical objects and properties but supervene on them (e.g., physicalism is compatible with the existence of nonfundamental mental properties that are realised[45] by fundamental physical properties).

Another account of physicalism is formulated by using the notion of grounding[46]. Schaffer (2016) has claimed that the grounding concept is at work in contemporary discussions of physicalism; it is the concept that Loewer (2001, p.39) has used to characterise physicalism as the view that *"the fundamental properties and facts are physical and everything else obtains in virtue*

[44] Lewis (1983, 1994) also has suggested a supervenience account of physicalism. While Lewis has taken supervenience to motivate ontological reduction, others have taken supervenience to be compatible with ontological irreducibility (e.g., Loewer, 2001).

[45] *"*[I]*f an instance of P realizes an instance of F, then the P instantiation metaphysically necessitates the F instantiation; in other words, any possible world that contains the first also contains the second*" (Loewer, 2001, p.44).

[46] I will describe grounding in detail in chapter 6. In the meantime, following Schaffer (2009, 2016), we can think of grounding as an irreflexive, asymmetric, transitive, generative, and superinternal relation.

*of them"*. According to Schaffer (2012, p.125), *"the general physicalist claim* [is] *that everything either is physical or is grounded in the physical"*[47].

Likewise, for Bennett (2011a), physicalism is the claim that the physical facts ground the mental facts. This means that *"the physical facts make it the case that the mental facts are what they are, have the intrinsic natures they do.* [...] *Both the less fundamental facts and the relation that generates them derive from the more fundamental facts"* (p.33).

All these accounts of physicalism have in common that they claim that every higher-level entity is determined by physical entities. The physical brings about the existence of higher-level entities and fixes their nature. Non-reductive physicalists believe so because they think that there is a determination relation between physical entities and higher-level entities.

Even though truthmaker theorists do not believe that there are irreducible, higher-level entities, the aforementioned accounts of physicalism can show them why the physical is privileged. In the picture described by truthmaker theory, given the physical entities, everything else is fixed. The physical determines the nature of everything because there is nothing additional to the physical. All higher-level truths hold because of physical truths. Physical truths hold because only physical entities are elements of our ontology. These considerations give us good reasons to be physicalists.

In the previous section, I have formulated a truthmaking account of physicalism. In this section, I have presented alternative accounts of physicalism. It is interesting to examine whether there is any compatibility between them. I will talk about supervenience, but similar remarks could be said about realisation or grounding accounts of physicalism.

I think that 'All higher-level entities supervene on the physical entities' is vacuously true because only physical entities are elements of our ontology. Still, I do not advocate a supervenience account of physicalism because I do not think that there is a relation between entities that belong to different levels of being since there are no different levels of being. Worries about the explanatory power of the supervenience relation (see Heil, 1998, 2003) led me to prefer the truthmaking relation. I reject the supervenience, realisation, or grounding accounts of physicalism

[47] Schaffer (2017) has endorsed a weaker physicalist view. *"Ground Physicalism: The physical is the ultimate ground for the chemical, the biological, and the psychological"* (p.14). See Dasgupta (2014b, p.584) for a different grounding account of physicalism.

because these relations do not hold: there are no distinct entities that are connected by these irreflexive relations. I prefer to formulate physicalism without mentioning a relation that does not exist. I say instead that there is only one level of being, the physical level of being, and sentences about other entities are true because of it.

There is a non-vacuously true reading of the claim 'All higher-level entities supervene on the physical entities' that does not ontologically commit us to higher-level entities. We get this non-vacuously true reading if we understand supervenience as a relation that can hold between entities that belong in different levels of description that may not correspond to different levels of being. For example, 'Mental properties supervene on physical properties' is non-vacuously true, if we understand the mental as something that is ontologically reducible to the physical.

I think we should not understand supervenience this way when we try to analyse physicalism. When philosophers give definitions of physicalism, they try to describe the structure of reality by talking only about irreducible entities. They are inside the metaphysical room and try to define physicalism by talking only about entities that we are ontologically committed to. This cannot happen if we understand supervenience in the above weak sense. I think philosophers correctly try to do so because physicalism is a *metaphysical* theory about reality.

## 2.2. The Multiple-Realisability Argument and WCR

We have seen that WCR can give us a reason to be reductive physicalists. Still, someone might claim that the multiple-realisability argument gives us a reason to be non-reductive physicalists. This argument was provided to reject the identity theory. It takes the truth of the Multiple Correlation Thesis to motivate non-reductive physicalism: each mental property is irreducible and realised by various physical properties. I will describe the identity theory and then present the multiple-realisability argument.

I will argue that WCR shows that the multiple-realisability argument is invalid. The multiple-realisability argument relies on the claim that non-identity entails ontological distinctness. But WCR shows that this claim is false because non-identity is compatible with ontological reducibility. WCR is a conceptual reductive account that can motivate an alternative argument, the multiple-truthmakers argument. According to the multiple-truthmakers argument,

there are multiple truthmakers of sentences about a higher-level property, not multiple realisers of a realised, irreducible property. Moreover, I will consider a defence of the multiple-realisability argument, suggested by Pereboom, and I will argue that it fails. Furthermore, I will examine responses against the multiple-realisability argument, suggested by identity theorists, and I will argue that they also fail.

### 2.2.1. The Identity Theory

It is crucial to distinguish between multi-descriptional physicalism and the identity theory. It will help to clarify my view and explain what is unique about it and other truthmaker theories (ontological reducibility without identification). So, I will briefly describe the identity theory and give an argument against it, the multiple-realisability argument. This argument is usually used to argue that higher-level properties are distinct from physical properties, but I will argue that a different version of it can be used to argue that higher-level properties are ontologically reducible, but not identical, to physical properties.

An important distinction is between type identity theory (i.e., type physicalism) and token identity theory (i.e., token physicalism). According to type identity theory, every property (or type or kind) is identical to a physical property (or type or kind). For example, the property of being in pain is identical to the property of possessing firing C-fibres. However, according to token identity theory, every particular (or token or instance) is identical to a physical particular (or token or instance or event). For example, a particular human pain is identical to particular neural properties, but an alien pain is identical to particular silicon properties.

Some influential proponents of the identity theory were Place (1956), Feigl (1958, 1967), Smart (1959), Lewis (1966/1983, 1972, 1980/1983, 1994), and Armstrong (1968, 1970, 1977). The main claim of this theory is that mental properties are identical to brain processes or states. According to Lewis (1966/1983), *"*[t]*he (Psychophysical) Identity Theory is the hypothesis that- not necessarily but as a matter of fact- every experience is identical with some physical state*[48][49].

[48] Lewis (1966/1983, p.99) took states to be universals.

[49] I present Lewis' identity theory here as it will be relevant in section 2.2.4.1. It will be argued there that WCR has an advantage over the identity theory.

*Specifically, with some neurochemical state*" (p.99). The identity theory is a contingent claim because there are possible worlds in which mental states are not identical to neurochemical states. For example, 'pain' is a non-rigid name[50] (i.e., a name with different denotations in different possible worlds) because in any world, 'pain' names whatever state happens in that world to occupy the causal role definitive of pain (i.e., pain's causes and effects in typical cases)[51]. For Lewis (1966/1983, 1972), names for mental states (and other theoretical terms) are definable functionally, by reference to their causal roles. Each mental state is an occupant of a certain causal role. In other words, each mental state is connected in specified ways to sensory stimuli, motor responses, and other mental states.

Reductive physicalists (Kim, 1984, 1989a, 1989b, 1992, 1993/2003, 1997a, 1997b, 2005[52]) claim that the mental is ontologically reducible to brain states. Identity theorists about the mind are reductive physicalists because they believe that mental properties are ontologically reducible to neurological properties (which may or may not be ontologically reducible to microphysical properties). My view can also be understood as a reductive physicalism, despite not claiming that higher-level entities are identical to the physical entities[53]. On the contrary, non-reductive physicalists (Fodor, 1974, 1989; LePore & Loewer, 1987; Yablo, 1992; Pereboom, 2002; Shoemaker, 2007; List & Menzies, 2009) argue that even though mental properties are distinct from neural properties, they are still friendly to physicalism because the microphysical determines their nature[54]. Irreducible mental properties can be compatible with physicalism because they are

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[50] For Lewis (1970), theoretical terms are names. *"*[N]*ames can purport to name entities of any kind: individuals, species, states, properties, substances, magnitudes, classes, relations, or what not"* (p.429).

[51] Lewis believed that because he thought that names for mental states are nonrigid designators. While Kripke (1972/1981) influentially has argued that some names for mental states, such as 'pain', are rigid designators, Lewis (1994, p.419) has argued that they are nonrigid.

*"A rigid designator is a singular term that names the same thing in each possible world. 'The color of the sky' is nonrigid, since it names blue in worlds where the sky is blue, and red in worlds where the sky is red. 'Blue' is rigid, since it names blue in all possible worlds, even in worlds where the sky is red"* (Block, 1980, p.182).

After Kripke (1972/1981), most people think that identities are necessary. Lewis is an exception. For the purposes of this thesis, there is no need to take a side.

[52] While earlier Kim was a reductive physicalist about every higher-level property, Kim (2005) has argued that phenomenal properties are the only properties that are irreducible to the physical. See footnote 17 for the reasons he believed so.

[53] Morris (2019, p.2, 9) also has not identified reductive physicalism with the type identity theory. He has noticed though that some philosophers have done this identification.

[54] The distinction between reductive physicalism and non-reductive physicalism is about whether higher-level entities, which are compatible with physicalism, can be ontologically reduced to physical entities. So, we can call these views 'ontological reductive physicalism' and 'ontological non-reductive physicalism'. A different distinction is between conceptual reductive physicalism and conceptual non-reductive physicalism, and the disagreement is

connected with the microphysical by a metaphysical dependence relation (e.g., a supervenience relation, a realisation relation, or a grounding relation) that shows the metaphysical priority of the physical[55]. Some non-reductive physicalists use 'physical' in the broad sense (e.g., biological and chemical properties are also physical because they ontologically depend on the narrowly physical properties)[56]. Those non-reductive physicalists call mental properties 'physical' in this sense. In contrast, I use 'physical' in the narrow sense because this serves better my goal: I want to argue that physical simples and their properties are the only elements of our ontology. An argument against reductive physicalism is the multiple-realisability argument.

### 2.2.2. Multiple-Realisability Argument or Multiple-Truthmakers Argument?

I will present the multiple-realisability argument and argue that it fails to show the truth of non-reductive physicalism. Instead, I will propose an alternative argument, the multiple-truthmakers argument. According to it, mental predicates have multiple physical truthmakers.

The multiple-realisability argument was initially presented by Putnam (1967/1975) to argue that mental properties are distinct from neural properties. For him, mental properties are functional states of whole organisms. The argument goes as follows:

(1) The type identity theory is true, iff for all mental properties *m*, there exists a neural property *n*, such that necessarily an organism has *m* iff it has *n*.

(2) Consider a mental property like 'being in pain'. It seems improbable that every different kind of animal is in pain in virtue of the same neural property because their brains do not have the same physical-chemical structure. Even if these animals are in pain in virtue of the same neural property, there is still the possibility of an extra-terrestrial life that feels pain, but it does not

about whether higher-level entities can be conceptually reduced to physical entities. Conceptual reduction may or may not entail ontological reduction. I am using the former distinction because my main interests are metaphysical.

[55] Functionalists sometimes take the irreducibility of the mental to entail the falsity of physicalism (see Block, 1980). This is the case because it is assumed that physicalism is true iff the identity theory is true. As we have seen, some philosophers take physicalism to be compatible with the irreducibility of the mental (given that it ontologically depends on the microphysical).

[56] Just a reminder that according to Noordhof (2010), narrowly physical properties are the properties mentioned by the current or future physics, and broadly physical properties are the properties that supervene on the narrowly physical properties.

have the same neural property as us because of the different physical-chemical structure of its brain.

(3) Even if the mental property of 'being in pain' is identical with a certain neural property for all organisms, it seems impossible that every mental property is identical with a neural property.

(4) Therefore, the type identity theory is false[57].

(5) Therefore, mental properties are ontologically distinct from neural properties.

Premise 3 denies the consequent of premise 1, and as a result, we should deny the antecedent of premise 1. The latter denial is premise 4.

LePore & Loewer (1987) and Fodor (1974, 1989) argued that Putnam's argument can be generalised and used to argue for the existence of many distinct higher-level properties (e.g., biological properties, chemical properties). Those properties are also multiply realisable and hence, they cannot be identical to any physical property.

The multiple-realisability argument can be shown to be invalid if the following two claims are true:

C1: Non-identity does not imply ontological distinctness.

C2: Non-identity is compatible with ontological reducibility.

Let's begin with C2. Assume that a mental property M exists and is correlated with various physical properties. Therefore, M cannot be identified with a physical property. In other words, M is not identical to a physical property because the Multiple Correlation Thesis holds. We wonder what metaphysical account we should give of M and the various physical properties. One plausible account is to claim that M is ontologically reducible to these physical properties. That is, M is nothing over and above the physical properties. This ontological reducibility can be explained further by using the truthmaker theory: M is ontologically reducible to various less-than-perfectly similar physical properties because sentences about M are made true by these properties. Concerning tokens, a particular M may be ontologically reducible to a particular physical property P, because sentences about *this* M are made true by *this* P.

[57] Token identity theory also faces problems (see Pereboom, 2002).

Given the truth of C2, C1 is obvious. Non-identity does not imply ontological distinctness because non-identity can be combined with ontological reducibility and the truthmaker theory. If a mental property cannot be identified with a physical property, this could be explained further by either non-reductive physicalism or truthmaker theory. More needs to be said to decide between them. There is not an easy way from non-identity to ontological distinctness.

I think that we should not conclude that mental properties are ontologically distinct from neural properties. Given (4), (5) does not follow (because of C1: non-identity does not imply ontological distinctness). So, the multiple-realisability argument is invalid. C1 is true because of C2: non-identity is compatible with ontological reducibility. C2 is motivated by my view and other truthmaker theories. They show an alternative, plausible metaphysical theory. A mental state may not be identical to a brain state because a robot may also possess this mental state or animals with different brain structures may possess this mental state. Still, every true sentence about this mental state can be made true by various less-than-perfectly similar physical states. So, this mental state can be ontologically reducible to the physical, even though it is not identical to any specific physical state. Concerning types, a mental state may be ontologically reducible to various less-than-perfectly similar physical properties.

I admit that there is a usage of 'distinct' that just means 'not identical'. So, C1 looks incoherent and the step from (4) to (5) looks very straightforward. But this usage ignores the plausibility and coherence of an alternative metaphysical theory, the truthmaker theory. It does not allow us to talk about a view that combines non-identity with ontological reducibility. I prefer to understand 'ontologically distinct' in the following way: if M is ontologically distinct from P, then M is an addition of being. On the other hand, if M is identical to P, then given P, M is not an addition of being, and M exists iff P exists.

But M can exist even if P does not exist because other physical properties can make true sentences about M. This shows that M is not identical to P. However, it does not follow that M is ontologically distinct from P.

Concerning tokens, a particular M may be ontologically reducible to a particular P. Another particular M may be ontologically reducible to a particular P*, and so on. This view is not token identity theory. It can be argued that even a particular M, which is ontologically reducible to a particular P, could be ontologically reducible to a particular P* because M and P have different

modal properties. So, even a mental token is not necessarily identical with a physical token. In some possible worlds, M is ontologically reducible to another physical property (see Pereboom, 2002, I will not present in detail this argument here).

Going back to the multiple-realisability argument, instead of (5), an alternative conclusion is plausible, and the methodological principle of simplicity, the causal-exclusion argument (see section 3.5), and WCR may persuade us to follow that conclusion. Mental properties may be ontologically reduced to neural properties and other less-than-perfectly similar physical properties, even if they cannot be identified with them. What a modified version of the multiple-realisability argument (the multiple-truthmakers argument) shows is that a mental predicate has multiple truthmakers, and that is why a mental property cannot be identified with a neural property. It does not show that an irreducible mental property has multiple realisers. (5) could be replaced by

(6) Mental properties are either ontologically distinct from neural properties or ontologically reducible to neural properties and other less-than-perfectly similar physical properties without being identical to them.
(7) The methodological principle of simplicity, the causal-exclusion argument, and the possibility of weakly conceptually reducing mental properties to neural properties and other less-than-perfectly similar physical properties are reasons to believe that mental properties are ontologically reducible to neural properties and other less-than-perfectly similar physical properties without being identical to them.
(8) Therefore, mental properties are ontologically reducible to neural properties[58] and other less-than-perfectly similar physical properties without being identical to them.

Concerning (8), the other less-than-perfectly similar properties can be silicon properties or other broadly physical properties. I believe that we can conclude the same for all higher-level objects and properties[59].

[58] I think that these properties are ontologically reducible to properties of physical simples. But at this point, I just want to argue that the multiple-realisability argument does not show that mental properties are distinct from neural properties. The methodological principle of simplicity, the causal-exclusion argument, and WCR can be reasons to believe that neural properties are ontologically reducible to properties of physical simples.
[59] See Bickle (1992, 1995), Klein (2013, 2014), and Polger (2015) for other ways to reject the multiple-realisability argument.

There is ontological reduction, but not strong conceptual reduction. All that exists are particles and their properties. We cannot strongly conceptually reduce higher-level properties to physical properties because there are multiple actual or nomologically possible truthmakers of sentences about higher-level properties (i.e., MCT holds). There are no correlating laws that link mental properties to physical properties because a mental predicate can be made true by an enormous number of different properties of particles.

Even though I have rejected the multiple-realisability argument, there are other ways to defend it and reject it. In the next two sections, I will present the view of a non-reductive physicalist (Pereboom) and two identity theorists (Lewis and Kim), and I will argue that they are problematic.

### 2.2.3. Multiple-Realisability Argument, Non-Reductive Physicalism, and WCR

Some philosophers have defended the multiple-realisability argument differently. One of them is Pereboom (2002), a robust non-reductive materialist, who claims that mental states[60] are nonfunctionalist, intrinsic, irreducible, structures[61][62]. I will describe his view and then argue that it fails to show that there are irreducible, mental properties.

For Pereboom, each mental property exhibits a structure of a single type that is intrinsic to this kind of mental state and instantiates the causal powers of this property. This structure can be realised in different kinds of neural systems and maybe even in silicon-based electronic systems, and so, it is irreducible to any of them. That is a kind of multiple-realisability argument that argues for the existence of irreducible structural mental properties instead of irreducible functional mental

[60] When I presented my metaphysical view, I was only talking about objects and properties. Pereboom, instead, talked about mental states having certain properties. Even though I prefer an ontology of only objects and properties, my objection to Pereboom does not depend on that. I will argue that even if states are a fundamental ontological category, Pereboom's view fails to show that non-reductive physicalism is true.

[61] *"A property, S, is structural if and only if proper parts of particulars having S have properties not identical with S and jointly stand in relation R, and this state of affairs is the particular's having S. That is to say, there is nothing more to having the structural property than being composed by parts having certain other properties and bearing certain relations to one another—it is ontologically reducible"* (O'Connor & Wong, 2005, p.663). 'Structure' can be understood in the above way. Pereboom has not given a definition of 'structure'.

[62] For Pereboom (2002, p.517), a reason to prefer this kind of non-reductive physicalism rather than the functionalist one is that the latter cannot account for the intrinsic character of mental states (i.e., it cannot account for their phenomenality and how a behaviour is causally explainable by intrinsic properties of mental states that instantiate mental causal powers).

properties[63]. Pereboom (2002, p.518) has argued for his metaphysical view by considering the following possibility concerning the belief that there is danger nearby: *"Perhaps this same structure can be realized in a silicon based electronic system, and such a system could then also have the belief. Suppose one built a silicon system that replicated the capacities of and interconnections among neurons in a human brain as much as is physically possible, and then excited the system to mimic as closely as possible what happens when a human being has this belief about danger. Is it not a serious empirical possibility that this silicon state would realize the same belief, and have a structure that, conceived at a certain level of abstraction, is similar enough to the structure of the ordinary neural system for both to count as instantiations of the same structure type?"*.

In arguing against this version of the multiple-realisability argument, the distinction between levels of being and levels of description/abstraction is important. I think that WCR gives us a good reason to believe that there is just one level of being. Still, there are different levels of description (i.e., different ways to describe the physical entities) and we find perfect similarity in a higher-level of description. I argue for the following claim:

C3: Perfect similarity in some respects between different physical properties does not imply an irreducible property.

Even if it is the case that I and my silicon replica have a structural property in common, we do not need an irreducible property to explain why this is the case. We find out perfectly similar structures when we consider physical properties abstractly. Talking about silicon and neurons explains everything we need to know. WCR is a way to show that. Adding an irreducible property does not have any explanatory advantage.

To give an example, consider the sentence 'X and Y have the same mental structural property M'. WCR can explain why this sentence has only physical truthmakers. Given a physical description of the world, we can infer either a priori or a posteriori that X and Y have the same mental structural property. X possesses brain state $B_1$, and Y possesses brain state $B_2$. $B_1$ and $B_2$ can be conceived as the same structural property because they are less-than-perfectly similar. Even

[63] To be more precise, that's Pereboom's argument for the distinctness of *types* of mental and physical properties. He has argued that *tokens* of mental and physical properties are distinct because they have different modal properties (I will not describe in detail this argument in this thesis).

though they are made from different materials, when we think about them abstractly, we notice a perfect similarity. We find out a perfect similarity because we ignore that $B_1$ and $B_2$ are made from different materials. This perfect similarity is abstract, so it does not need to imply an irreducible mental property. We can describe what is the similarity between $B_1$ and $B_2$ in a way that helps us to find out which other physical properties can be truthmakers of sentences about M.

The temptation to postulate an irreducible mental property may result from negating C3 ('Perfect similarity in some respects between different physical properties implies an irreducible property'). But as WCR shows, there is another way to explain perfect similarity. That way does not need to mention an irreducible mental property.

In an abstract sense, animals with different physical properties may 'share' the same structural property. However, this is the case because we abstract from the physical differences in each case (i.e., we partially consider their structures). There is no reason to assume an irreducible mental property. The neurological structural property and the silicon structural property are two different properties. We do not need an extra property to explain why the two structures are perfectly similar.

In order to illustrate this claim, consider a more straightforward example. Suppose that there are two tables that are made from different materials but with the same mass. Do we need an irreducible property to explain this perfect similarity or are the properties of the simples that make them sufficient to give such an explanation? I believe the latter is correct. They have the same mass because of the less-than-perfect similarity between the properties of the simples that make these tables. Other properties of these tables are not perfectly similar because of the above less-than-perfect similarity.

It might be responded that if visual experience in humans and mammals *"share intrinsic structures, then they could share causal powers that are essentially neither neural nor electronic, but rather psychological or mental. Visual state types could then be mental state types that conform to the robust nonreductive materialist conception"* (Pereboom, 2002, p.528).

I do not agree with the reasoning that if a structure or a causal power is essentially neither neural nor electronic, then we have a reason to believe that this structure or causal power is irreducible to the physical. It is still an open possibility that different materials can be arranged in the same way, but this 'same way' is not something over and above the physical. This is the case

because the similarity is abstract. We ignore the dissimilarities (one structure is neurological, the other is silicon), and we focus on the perfect similarity in an abstract way. If two different materials are arranged in the same way, we do not need to postulate an irreducible structure to explain this. We can say that a derivative, higher-level structure exists, but it is ontologically reducible to various physical structures.

Given that these structures are less-than-perfectly similar, it seems unproblematic to assume that some of their causal powers will be the same. They have differences: a silicon structure interacts with silicon structures; a neurological structure interacts with neurological structures. Still, both these structures may count as pain and cause avoidance of the source of pain. The less-than-perfect similarity between structures is sufficient to explain this. Both the similar and different causal powers can be explained by the less-than-perfectly similar structures.

When we talk about levels of being, the person with the neurological brain and the person with the silicon brain do not share a property because one structure is neurological, and the other is silicon. When we are concerned with levels of description, then we can find a structure in common. But this is a looser talk. An irreducible mental structure is not implied.

Pereboom and I conclude different things by considering the abstractness of mental states. For Pereboom (2002), an abstract structure possessed by beings with different physical structural properties implies the existence of an irreducible structure: *"I suggest that we might indeed identify a mental state type with a structure, but a structure more abstract than any specific neural structure, and one that can potentially be realized by a silicon-based system. Kim envisions the reducing structure to be neural, or physical at a lower level yet. My proposal is that there are structure types which cannot be classified as specifically neural, but which must rather be categorized as mental, and which would be intrinsic properties of mental states"* (p.518).

For me, an abstract structure that is possessed by different beings just reveals how we partially consider the different physical structures and group them together. It can be called 'mental', but this does not imply the existence of an irreducible mental property. An abstract mental structure is ontologically reduced to various less-than-perfectly similar physical properties. The methodological principle of simplicity, the causal-exclusion argument, and WCR can persuade us to believe so.

### 2.2.4. Multiple-Realisability Argument, Identity Theory, and WCR

By looking at Pereboom's view, I have examined one defence of the multiple-realisability argument and argued that it fails. I will now move to discussing objections to the multiple-realisability argument suggested by identity theorists. Identity theorists objected to the multiple-realisability argument by restricting their identity claims. I will argue that restricted identities are either not restricted enough, or not sufficient to explain why we call different animals as being in a mental state without using resources of the truthmaker theory. I will argue that the truthmaker theory is sufficient to explain the way we talk, and this is a reason to prefer it. It leads to an ideologically simpler metaphysical theory.

#### 2.2.4.1. Lewis' Identity Theory

Lewis' (1980/1983) 'Mad Pain and Martian Pain' paper can be used to argue that the multiple-realisability argument and the multiple-truthmakers argument fail, and so, the identity theory does not face any problem. Lewis (1980/1983) did not object directly to Putnam or the multiple-realisability argument, but the cases of mad pain and Martian pain, mentioned by him, could be seen as engaging with similar considerations. Lewis argued that each mental property is defined by its causal role and can be identified with the brain state that occupies this causal role. The identity is contingent: different states could occupy this causal role in different species. I will present Lewis' view and argue that it fails to show that for each mental property and each species, there is only one state that occupies the causal role associated with that property. It seems possible that a mental predicate can apply to various less-than-perfectly similar human brain states because they play less-than-perfectly similar causal roles. I will argue that WCR can explain better why different brain states may play similar causal roles and why this can be compatible with a one-level-of-being view.

Suppose that pain is identical to the firing of C-fibres because this brain state occupies the typical causal role of pain. For Lewis (1980/1983), it is possible that a madman is in this brain state, but its causes and effects are greatly different from ours. Madman's pain is caused by

moderate exercise on an empty stomach and causes him to focus on mathematics. His pain is not caused by cuts, burns, pressure, and the like. His pain does not cause him to groan or writhe.

Lewis (1980/1983) has also considered it possible that a Martian feels pain, just as we do, despite its different physical realisation. *"His hydraulic mind contains nothing like our neurons. Rather, there are varying amounts of fluid in many inflatable cavities, and the inflation of any one of these cavities opens some valves and closes others. His mental plumbing pervades most of his body—in fact, all but the heat exchanger inside his head. When you pinch his skin you cause no firing of C-fibers—he has none—but, rather, you cause the inflation of many smallish cavities in his feet. When these cavities are inflated, he is in pain. And the effects of his pain are fitting: his thought and activity are disrupted, he groans and writhes, he is strongly motivated to stop you from pinching him and to see to it that you never do again"* (p.123).

According to Lewis (1980/1983), these possibilities show that pain is associated only contingently with its causal role (mad pain) and pain is connected only contingently with its physical realisation (Martian pain). These possibilities seem to raise the problem of how to characterise pain a priori in terms of causal role and physical realisation, and yet respect both kinds of contingency. A simple identity theory does not work because it goes wrong about Martian pain. A simple functionalism does not work because it goes wrong about the mad man.

The solution suggested by Lewis (1980/1983) was to understand mental concepts as nonrigid concepts. Similarly, mental words are nonrigid designators. That is, it is a contingent matter what state a mental concept and a mental word apply to. It depends on what causes what.

So, for Lewis (1980/1983), a state can occupy a causal role for a population, but other states may play the same role at our world and at other worlds. *"If the concept of pain is the concept of a state that occupies that role, then we may say that a state is pain for a population. Then we may say that a certain pattern of firing of neurons is pain for the population of actual Earthlings and some but not all of our otherworldly counterparts, whereas the inflation of certain cavities in the feet is pain for the population of actual Martians and some of their otherworldly counterparts.*

*Human pain is the state that occupies the role of pain for humans. Martian pain is the state that occupies the same role for Martians*[64].

*A state occupies a causal role for a population, and the concept of occupant of that role applies to it, if and only if, with few exceptions, whenever a member of that population is in that state, his being in that state has the sort of causes and effects given by the role"* (p.126). So, the firing of C-fibres occupies the causal role of pain for humans, and that is why the madman is in pain when his C-fibres fire. Also, the inflation of certain cavities in the feet occupies the causal role of pain for Martians, and that is why Martians are in pain when certain cavities in their feet are inflated.

> *"We may say that X is in pain simpliciter if and only if X is in the state that occupies the causal role of pain for the appropriate population. But what is the appropriate population? Perhaps (1) it should be us; after all, it's our concept and our word. On the other hand, if it's X we're talking about, perhaps (2) it should be a population that X himself belongs to, and (3) it should preferably be one in which X is not exceptional. Either way, (4) an appropriate population should be a natural kind—a species, perhaps"* (Lewis, 1980/1983, p.127).

I think Lewis' identity theory faces problems. His account accommodates exceptions, such as the mad man, but it cannot accommodate a case where a mental state is associated with a causal role, different brain states occupy this causal role, but no brain state occupies this causal role for the majority of a population. Lewis considered this case and claimed that if no brain state occupies the causal role of a mental state for the majority of a population, then the name of this mental state does not refer to anything or we should choose arbitrarily which is the referent. I will argue that these options face problems.

But first, consider the possibility of a mental state that is associated with a certain causal role, but many different brain states play this causal role. Consider the 'desire to watch a film in the cinema'. There is a causal role associated with this mental state. It is caused by reading a review about a film, noticing that a new film is played in the local cinema, and so on. It causes people to go to the cinema, invite their friends to go with them, and so on. It seems possible that different

[64] Species-specific reductionism was also suggested by Kim (1989a, 1992, 2005). For Kim (2005), only phenomenal properties are irreducible to the physical.

brain states of people can occupy this causal role because people associate watching a film in the cinema with different things. They think different things about this activity by considering it (e.g., one person may value more the quality of the screen in a cinema, another may value more watching a film while sitting on a cosy sofa). So, it can be the case that there is a variety of brain states that occupy this causal role. These brain states can be less-than-perfectly similar. Still, there is not one brain state that occupies this causal role for the majority of people[65].

What should we do about this possibility? Should we start categorising humans differently? Maybe the firing of D-fibres occupies the causal role of the desire to watch a film in the cinema for humans$_{1,}$ and the firing of E-fibres occupies the causal role of the desire to watch a film in the cinema for humans$_{2,}$ and so on. But then we categorise humans in an unnatural way. Our categorisations seem ad hoc. We do them just for saving the identity theory. Also, we may need to do different categorisations for different desires and then the result is an abundance of categorisations.

Keep in mind that Lewis wanted the appropriate population to be a natural kind. But the categorisations we should do to identify certain desires with brain states do not seem natural at all. We categorise humans in a certain way because of just one desire, and they can be categorised differently because of other desires.

I think it is a mistake to consider only the feeling of pain when we examine whether the identity theory is true. It may be the case that only one brain state occupies the causal role of pain for humans because pain is such a primitive and essential feeling for our survival. But when I consider a desire about doing a specific activity in a specific place, I am less confident that there is only one brain state that occupies this causal role for the majority of humans. Humans differ on which aspects of an activity they associate with it (a professional chess player understands more aspects of a chess game rather than a novice chess player), and they differ on which aspects of it are the

[65] Fodor (1974, p.105) has considered possible that a person is in the same mental state at different times despite being in different brain states at these times. He has taken this possibility as a reason to believe that mental properties are irreducible to the physical. This phenomenon is what Bickle (1992, p.51) called *"multiple realization across the same individual at different times"*.
My multiple-truthmakers argument concludes instead that sentences about a person being in a mental state at different times could be made true by various less-than-perfectly similar brain states. My example in this section can be understood as the phenomenon of "multiple physical truthmakers across individuals belonging in the same species".

most important for them (e.g., I enjoy watching a film in the cinema mainly because the screen is big, you enjoy watching a film in the cinema mainly because you go out with your friends and discuss the film). That is why there are different brain states associated with one type of desire.

Maybe D-fibres and E-fibres belong to one type. They are less-than-perfectly similar after all. They may also be perfectly similar when they are considered abstractly. But there is no need to claim that there are D-fibres, E-fibres, *and* an irreducible state over and above them. All the relevant causal work is done by D-fibres and E-fibres. Therefore, there is not one state that occupies the causal role of the desire to watch a film in the cinema for humans.

Lewis (1970, p.433) could respond by saying that if the M-role is occupied by two different brain states, then we should choose arbitrarily one of them as the referent of the mental term. I think this is an undesirable result. Our folk-psychological concept of M can describe equally well these two states. Why not let M refer to both of these brain states?

If we choose arbitrarily between them, negative consequences follow. If the M-role is doubly occupied by P and P*, and we choose arbitrarily P as the physical state that is identical to M, then we cannot make useful generalisations. For example, suppose that M is the desire to watch a film in the cinema. Concerning people that possess either P or P*, we would like to say that all of them desire to watch a film in the cinema as they behave in similar ways and have similar mental lives. But given that we assumed that M is identical to P, we cannot say that people that possess P* desire to watch a film in the cinema. We cannot talk about a less-than-perfect similarity between these people that helps us to understand, explain, and predict their behaviour.

Instead, Lewis could respond by saying that if many brain states occupy the M-role, M does not refer to anything (see Lewis, 1970, p.432). *"If multiple realization[66] is a defect that theorists can reasonably hope to avoid, then we can afford to treat multiply realized theories as failures: call them false, and call their theoretical terms denotationless"* (p.432-433).

> *"Is there any reason to think that we must settle for multiply realized theories? I know of nothing in the way scientists propose theories which suggests that they do not hope for unique realization. And I know of no good reason why they should not*

[66] By "multiple realisation", Lewis meant that there are different properties that are candidates for being the referent of a theoretical term. This has nothing to do with irreducible properties.

> *hope for unique realization. Therefore I contend that we ought to say that the theoretical terms of a multiply realized theories are denotationless"* (Lewis, 1970, p.433).

If we accept Lewis' view, we have the unwanted result that most of our folk-psychological names do not refer to anything. Multiple realisation should not be understood as a defect but as an advantage of a theory in certain situations. It allows us to talk about imperfect similarities. That is a reason to think that it is fine to settle for multiply realised theories. They give us a way to talk about imperfect similarities in an easy way.

WCR shows us another way to think about reduction and reference. Reduction does not need to be one-one. A folk-psychological name may refer to multiple brain states. Our folk-psychological names are doing great work to refer to real entities in the world. I think the identity theorist faces a problem if their view results in the suggestion that we should choose arbitrarily the referents our psychological names. We do not intend to pick out one specific brain state when we talk about our desire to watch a film in the cinema. Why should there be only one way that sentences about this desire are made true? Why should we use such strict application conditions for sentences of an ordinary language? Two brain states may occupy the causal role that we had in mind. Why should we choose between one of them or say that the relevant psychological name does not refer?

An identity theorist may object to the example that I have used (the desire to watch a film in the cinema). They may claim that we should be functionalists about beliefs and desires even if we are identity theorists about pain and other phenomenal properties. That is the case because it is not so clear that there could be a mad desire to go to the cinema (that caused completely different behaviours and is caused in a completely different way).

Still, I think similar considerations against the identity theory can be told about phenomenal properties. I have talked about a desire because it illuminates better my point. But I think that even the causal roles of phenomenal properties can be occupied by different human, brain states. Consider a brain state that occupies the causal role of being in pain. Slightly different neurons may fire, and this could still count as pain. Moreover, different people may find different things painful (e.g., recent rap music, Marvel movies, loneliness, socialising with many people), and this may result in different brain states playing the causal role of pain. Still, it seems correct to say that all

the different brain states that play the causal role of pain count as pain. I have mentioned earlier that it may be the case that only one brain state occupies the causal role of pain for humans because pain is such a primitive and essential feeling for our survival. But this does not make it impossible that two brain states occupy the causal role of pain. On the contrary, the fact that the brain is extremely malleable speaks strongly for the possibility of many human brain states occupying the causal role of pain.

### 2.2.4.2. Kim's Identity Theory

So far, we have seen that Lewis' reductive account faces problems. But it may be suggested Kim's identity theory solves those problems. I will present Kim's different reductive accounts and argue that they also fail. Either they ignore certain possibilities, or the reductions go so fine-grained that they do not explain satisfactorily why we describe different animals as being in the same mental state. The resources of the truthmaker theory need to be used to do such an explanation, and then it is unclear why we need the identity theory.

Kim (1989a) has admitted that species-specific biconditional laws may be impossible because of individual differences in the localisation of psychological functions in the brain. *"Moreover, given the phenomena of learning and maturation, injuries to the brain, and the like, the neural structure that subserves a psychological state or function may change for an individual over its lifetime"* (p.38). In other words, an individual may fall under different structure types at different times and across time, a mental property of this individual may be identical to different physical properties because of that.

Nonetheless, Kim (1989a, p.38-39) could object to my above remarks by saying that reduction should not be relative to species but relative to physical-biological structure type. According to Kim (1989a), structure-specific biconditional laws, where S is a structure-type, of the form $Si \rightarrow (M \leftrightarrow Pi)$ can be stated, and these laws motivate reduction of the mental to the physical. *"*[F]*or each psychological state there are physical-biological structure types, at a certain level of description or specification, that generate laws of this form"* (p.38).

But is it not possible that concerning a single physical structure type, being M is correlated with different physical properties? Does this not undermine the identity theory? Kim (1992) has

not considered this possibility a problem for the identity theory. He has argued that given a certain structure-type, biconditional laws of the form P ↔ M can be given, where P can be disjunctive. That is, P can be a disjunction of physical properties. Therefore, M can be instantiated in the system in question at a time if and only if at least one of the disjuncts of P is instantiated at that time.

For Kim (1992), every mental property can be reduced to a finite or an infinite disjunction of physical properties. For example, M can be reduced to $N_h$ in humans or $N_r$ in reptiles or $N_m$ in Martians. Each of these Ns could also be disjunctive.

It seems that whether the identity theory is true or not relies on whether the disjunctive move is legitimate. A worry inspired by Fodor's (1974) remarks may be that, while disjunctions of heterogeneous kinds are unfit for laws because of their heterogeneity, mental kinds are fit for laws, and so, we cannot identify a mental property to a disjunction of neural properties. Nomic properties are the sort of properties in terms of which laws can be formulated. However, nonnomic properties cannot enter into a scientific theory that seeks to formulate causal laws and causal explanations.

But for Kim (1992, p.13), *"*[t]*here is nothing wrong with disjunctive predicates as such; the trouble arises when the kinds denoted by the disjoined predicates are heterogeneous, "wildly disjunctive", so that instances falling under them do not show the kind of "similarity", or unity, that we expect of instances falling under a single kind*. […] [D]*isjunctive properties, unlike conjunctive properties, do not guarantee similarity for instances falling under them. And similarity, it is said, is the core of our idea of a property"*.

Kim thought that reductive and non-reductive physicalists (such as LePore & Loewer, 1987, and Fodor, 1974) agree with the following thesis. *"The parallel metaphysical underpinnings for pain, and other mental states in general, are, first, the belief, expressed by the Restricted Correlation Thesis, that pain, or any other mental state, occurs in a system when, and only when, appropriate physical conditions are present in the system, and, second, the corollary belief that significant properties of mental states, in particular nomic relationships amongst them, are due to, and explainable in terms of, the properties and causal nomic connections among their physical "substrates". I will call the conjunction of these two beliefs "the Physical Realization Thesis"* (Kim, 1992, p.14).

Kim (1992) has argued that an objection against the non-reductive physicalist follows if they agree with the above thesis. Assume that a property N has a disjunctive definition, $N_h$ or $N_r$ or $N_m$. If $N_h$, $N_r$, and $N_m$ are heterogeneous, we cannot make the heterogeneity go away merely by introducing a simpler expression "N". "*If pain is nomically equivalent to N, the property claimed to be wildly disjunctive and obviously nonnomic, why isn't pain itself equally heterogeneous and nonnomic as a kind?"* (Kim, 1992, p.15).

Consider the law 'Pains cause anxiety reactions'. It holds for humans, but it is unclear whether it also holds for Martians. Martians' psychology is implemented by a very different physical mechanism and if we accept the Physical Realization Thesis, we should not expect a regularity to hold for them just because it does for humans. Mental regularities hold in virtue of the causal-nomological physical regularities. So different physical regularities in different creatures may result in different mental regularities.

A non-reductive physicalist may respond by saying that mental properties are nomic because they are second-order properties. That is, properties that consist in having a property with a certain functional specification. For example, pain is a second-order property because it is the property of having some property with a certain specification in terms of its typical causes and effects and its relation to other mental properties. But for Kim (1992), if the physical realisers of pain satisfy this specification, it is unclear why the disjunction of them is not also a nomic kind and is unacceptably disjunctive. It seems that if a predicate is nomically equivalent to a well-behaved predicate, then it is also well behaved and expresses a well-behaved property. So, the disjunctive property N is also a nomic kind.

Kim (1992) has considered it more plausible that pain is nonnomic because of the Physical Realization Thesis and the priority of the physical implicit in it. He took the above reasoning to motivate local reductions (e.g., reducing a mental property relativised to a species) instead of global reductions (e.g., reducing a mental property globally).

But what about pain itself? Kim (1992, p.26) has argued that we have two choices *"either we allow disjunctive kinds and construe pain and other mental properties as such kinds, or else we must acknowledge that our general mental terms and concepts do not pick out properties and kinds in the world (we may call this "mental property irrealism")"*. We have seen that the first option faces problems. The second option leads to the conclusion that mental properties relativised to

species survive, but mental properties simpliciter do not. Still, there are certain criteria (maybe functional) for the application of a mental predicate (i.e., there are certain criteria that determine whether this predicate is correctly applicable to a property). So, a mental predicate applies to reality, but it does not pick out a property. No property answers to a general species-unrestricted mental predicate. Still, there are mental states, and sometimes, we are in some of them. There are species-restricted mental properties (e.g., human pain), but there are no species-unrestricted mental properties. There are pains but there is no property of being in pain.

I think that this view is close to the truthmaker theory. Kim has used both the identity theory and the truthmaker theory to explain the way we talk and show why reductive physicalism is true. He used the identity theory to reduce human pains, reptile pains, etc., and he used the truthmaker theory to explain why all these different animals are correctly described as being in pain.

A mental predicate may not pick out *a* property, but it picks out a variety of less-than-perfectly similar properties possessed by different animals. That is why local reductions can be done. These animals have less-than-perfectly similar causal powers because of their less-than-perfectly similar properties.

Truthmaker theory by itself can explain everything we need. There is no motivation for complicating the ideology of our theory by using the resources of both the identity theory and the truthmaker theory.

Furthermore, using the truthmaker theory to ontologically reduce human pain allows the possibility that different brain states can truly be called ‘pain’ in humans. Even if we go more fine-grained and relativise pain to a physical structure type, it does not seem impossible that different properties can still satisfy the causal role of pain. That is the case even if we go even more fine-grained and talk about pain relativised to a physical structure type at a certain time (e.g., there may be two brain states that occupy the causal role associated with pain). The disjunctive strategy does not work for the reasons mentioned by Kim (1992), and it seems too much theoretical cost to eliminate even this relativised mental property (we lose the ability to do certain predictions and explanations).

Moreover, the identity theory does not allow the possibility that two physical properties, which possess slightly different causal powers, may still count as a mental property relativised to a

physical structure type. Imagine that being in pain is associated with 5 effects. Do we not want to say that someone is in pain, even if they do not have one of these effects? They are very similar to the typical case of being in pain. Imagine that somebody cannot scream when they are in pain, but they can react in all the other ways that somebody that is in pain does. It seems correct to describe them as being in pain.

A motivation for being an identity theorist is the simplicity of the resulting ontology. But we can have this ontology without the identity theory, and so, the motivation for it disappears. The truthmaker theory can also show why the mental is not irreducible and can do that without suggesting new predicates and relativised properties.

This ends the discussion of the multiple-realisability argument[67]. I have tried to motivate an alternative picture of what a modified version of the multiple-realisability argument (the multiple-truthmakers argument) shows: a mental predicate applies to different beings because the simples that make them are arranged in less-than-perfectly similar ways, and they have less-than-perfectly similar structural physical properties because of that. Even if they are arranged in the same way in a certain level of abstraction, an irreducible property is not needed to explain why this is the case. My view is preferable because of its ontological simplicity, the causal-exclusion argument, and WCR.

## 2.3. WCR and the Prototype Theory of Concepts

In this section, I will discuss the prototype theory of concepts to explore similarities between it and WCR and examine whether it has any implication for WCR and metaphysics in

[67] I think that Heil (1999, 2003) has given further good objections against it and specifically, against the claim that all different kinds of beings that are in pain are so because they have some causal powers in common in virtue of an irreducible mental property.
While Heil (1999) has focused on talking about causal powers to reject the multiple-realisability argument, I focus on talking about the distinction between levels of being and levels of abstraction to reject this argument. My main idea on approaching this topic is that there is one level of being and there is less-than-perfect physical similarity between the people that possess a mental state. There are many levels of abstraction and there may be perfect mental similarity between the people that possess a mental state when we consider things abstractly. But there is no irreducible property that corresponds to this similarity. We get this perfect similarity because we ignore the physical differences between each case. The distinction between levels of being and levels of abstraction is taken by Heil (2003), but I develop it and use it to argue against the multiple-realisability argument in a different way. I engage with different philosophers that discussed the multiple-realisability argument.

general. WCR was developed by using the notion of similarity. The notion of similarity is also used by the Prototype Theory of concepts to explain the meaning of our concepts and how these concepts refer to real entities.

The prototype theory of concepts was initially suggested by Rosch (1975) and Rosch & Mervis (1975), and later developed by Hampton (2006, 2015, 2016). For Hampton (2006, p.79-80), *"*[t]*he central insight of Prototype Theory is that word meanings and the conceptual classes that the words name are distinguished one from another not in terms of an explicit definition but in terms of similarity to a generic or best example"*. For example, *"*[t]*he concept red is the class of colors that are centered around a particular point on the spectrum that everyone tends to agree is the prototype red.* […] *The category of red things is therefore the category of things whose color is sufficiently similar to a prototypical red (and dissimilar from other prototypes)"* (p.80). The concept representation of 'red' is associated with the prototype example of this class. Members of a semantic category have in common a sufficient degree of resemblance to each other and not some set of defining features.

The prototype is considered an abstract, generic concept that is constituted from the different ways in which the category members resemble each other and differ from nonmembers. *"*[A]*n abstract prototype allows for the representation of different possible values of relevant features such as that apples can be red, green, brown, or yellow.* […] *Prototypes then are the centers of clusters of similar objects and prototype concepts form similarity-based categories. The center of the cluster is well established and agreed upon, but the boundary between one category and another may be subject to vagueness and disagreement"* (Hampton, 2006, p.80).

*"A prototype represents a kind in terms of its most common and typical properties. However, no individual property need be true of the whole kind (although some may be), so that belonging to the category simply involves possession of a sufficient number of such properties. Exemplars* [(i.e., category members)] *will also differ in typicality as a function of the number of such properties they possess. More broadly, a prototype concept is one whose reference is the set of all exemplars whose similarity to a prototype representation is greater than some threshold criterion*" (Hampton, 2016, p.129).

Hampton (2015, p.659) has emphasised that the notion of similarity appealed to by the prototype theory can be of different kinds. It can be similarity in appearance (e.g., visual),

functional similarity, or similarity concerning historical origin[68]. For example, concerning historical origin, it may be the case that the intention of a designer to create a specific kind of artefact is the single necessary defining property of artefact kinds. But in other cases, similarity of one kind may not be sufficient to determine categorisation. Prototype concepts can integrate multiple sources of information.

The prototype theory is a descriptivist theory of concepts (in the sense that a prototype concept is associated with certain descriptions about its prototype), and according to a version of it, intensions determine extensions. *"For Prototype Theory the determination of extension is achieved by specifying a measure of the match between the representation of an object or class and the prototype representing the category. If the degree of match is above some criterion, then the object is included in the category. If it is close to the criterion then it may be a borderline case, thus giving rise to Vagueness, and the further above criterion it is, the more typical a category member the item becomes, hence leading to the phenomenon of Typicality"* (Hampton, 2006, p.84). Vagueness and Typicality are two phenomena concerning categories in a domain that demonstrate prototype structure for that domain:

*"a. Vagueness: Categorization of items could be vague or ''fuzzy.'' That is to say, there exist cases whose membership in a category is uncertain, not because of lack of knowledge but because of the lack of a clear rule for categorization that applies to every case.*

*b. Typicality: Within a category, items differ reliably in their ''goodness-of-example'' or typicality"* (Hampton, 2006, p.83).

Another option is to fix conceptual contents in terms of extensions by endorsing externalist theories of concept individuation. In his later works, Hampton (2015, p.661-667; 2016, p.134) has endorsed an externalist approach. *"People's mental representations of the world in their conceptual store are not concepts themselves, but are representations of concepts"* (Hampton, 2015, p.661). He has said that possessing the meaning of a word is connected to two sources of external validation. In other words, the descriptions associated with a prototype concept that I use are determined by sources outside of my psychology and intensions.

[68] Even though when I have developed WCR, I have focused on similarity in terms of causal powers, I believe that different higher-level predicates apply to reality in virtue of different kinds of physical similarity.

First, conceptual contents are constrained by the physical and social world (i.e., by what is true about the referent of a concept). For example, deciding whether the concept ‘snake’ is associated with the description of ‘being slimy’ or the description of ‘being dry’ is determined by how snakes actually are. It involves examining the class of things being talked about (the actual class of snakes).

Second, the group of language users that someone belongs constrains their meanings. Normative rules about the use of words apply to everyday conversation and language exchange. Language behaviour and how people use words when talking to each other can provide a way to decide the content of a concept. For example, deciding the meaning of a height term like tall is not a matter of examining the referent of the term. Tall things do not constitute a class independent of our understanding of them. Instead, this kind of concepts should be defined by the consensus that exists among a group of speakers or a powerful minority of scientific experts. In other words, whether someone is tall or not is determined by the way that the speakers of English are using the word ‘tall’.

I think that WCR is compatible with the prototype theory of concepts. While the prototype theory of concepts is about semantics, WCR is about metaphysics. While the prototype theory of concepts explains how and why a term applies to a variety of entities, WCR presents a way to understand the physical similarity between different truthmakers of a term and why a higher-level phenomenon can be reduced to the physical. The prototype theory of concepts and WCR explain why a term can have different truthmakers (because these truthmakers are less-than-perfectly similar). Less-than-perfectly similar entities can be the truthmakers of our terms because our concepts involve prototypes.

When we use our concepts, we apply the same term to different cases because of the similarity of these cases with the prototype. The similarity we notice may not be at the level of the truthmakers. Still, what we pick out with these concepts is a similarity at the metaphysically independent, physical level that can be described in different ways at different levels of abstraction.

If the prototype theory of concepts is true, WCR and reductive physicalism are compatible with it (but there are other conceptual reductive theories and ontological theories compatible with it). If the extension of a term is determined by a prototype and the different category members can vary on how typical they are as members of this category, this can be the case because our terms

pick out less-than-perfectly similar physical properties. Alternatively, it could be the case that our concepts pick out less-than-perfectly similar higher-level properties, but this is not entailed by the truth of the prototype theory, and we may have independent reasons to reject this. For example, it could be argued that the phenomenal prototype of concepts and the methodological principle of simplicity give us a reason to endorse reductive physicalism. The prototype theory does not motivate the belief that many different things can be described in a certain way (e.g., 'sport', 'red', 'vegetable') because they have a property in common. Our language does not demand a specific ontology for the truth of our sentences or utterances. Different things can make true a predicate or a term. We do not use a term to talk only about one specific thing. Instead, we use a term to talk about a range of similar things. Given that our concepts are prototypes and physical entities can be their truthmakers, we can deny the existence of irreducible properties because they are not needed for the truth of our sentences and the result is a simpler ontology.

What may have motivated non-reductive physicalists to suggest the multiple-realisability argument is the principle (Φ), mentioned but not endorsed by Heil (2003), of the form: *"When a predicate applies truly to an object, it does so in virtue of designating a property possessed by that object and by every object to which the predicate truly applies (or would apply)"* (p.26). Given that the prototype theory of concepts is true, we have a reason to reject this principle. Our predicates are not used in a way that attempts to pick out unique properties. Instead, we attempt to use them to pick out a variety of less-than-perfectly similar properties. For example, there are certain descriptions that are typically true of someone that is happy. However, not all of these descriptions apply to everyone that is happy. We describe someone as 'happy', even if it is a borderline case between being happy and being satisfied. Even between different animals, when we talk about humans, dogs, and cats being happy, we do not intend to pick out a unique property that all of them possess. We just want to say that there are some similarities between these animals (e.g., they have less-than-perfectly similar phenomenal experiences). Our concept of 'happy' is a prototype concept. These cases may be typical cases of being happy or they may not be so typical (does a cat have as a robust phenomenal experience as me? If not, maybe it is not as a typical case of being happy as I am or it is a borderline case). So, given that we do not attempt to pick out a unique property by talking about different animals being happy, we should not be surprised if we do not pick out such property. Moreover, we should not become eliminativists about happiness

just because we do not pick out a unique property of being happy. 'Being happy' is not used to do such a picking.

Similar remarks could be developed if the exemplar theory of concepts (Medin & Schaffer, 1978; Smith & Medin, 1981; Nosofsky, 1988) is true. I would not present this view and the similar implications for metaphysics for the sake of brevity. See Murphy (2016) for reasons to prefer the prototype theory of concepts over the exemplar theory of concepts (it explains better certain phenomena concerning hierarchical structure, knowledge effects, and induction).

## 2.4. Cameron's Truthmaker Theory, The Pragmatic Dimensions of Our Language, and WCR

Another truthmaker theory is the one suggested by Cameron. I will describe it here because it will be relevant in the next section, and it is interesting to see whether it can be combined with WCR. I think that my view and his view can co-exist and complete each other. While my view focuses more on the different ways we describe reality and the pragmatic dimensions of our language, Cameron's view focuses more on the different notions of existence. I will describe this view because I will develop some thoughts of Cameron for why we should not attempt to read off features of reality from our ways of speaking about it. I will do this by focusing on the pragmatic dimensions of our languages more than Cameron. By talking about this, competing views about what is the task of metaphysics will be presented. This will lead me to the suggestion of a new argument for a specific metametaphysical position in the next chapter. Cameron's view will also be used in chapter 4 to defend my one-level-of-being view.

### 2.4.1. Cameron's Truthmaker Theory

While Heil (2003) has claimed that higher-level and lower-level entities exist *simpliciter*, Cameron has made a distinction between entities that exist *fundamentally* and entities that exist *derivatively*.

Cameron (2008a) has disagreed with Quine and van Inwagen about what are the ontological commitments of a theory. Quine (1948) has claimed that they are those things that must be said to lie within the domain of the quantifiers if the sentences of the theory are to be true.

Van Inwagen (1990) accepted Quine's criterion of ontological commitments and claimed that sentences apparently about composite objects, excluding living beings, are false in metaphysical contexts, but true in ordinary contexts if there are simples that are arranged in certain ways. He offered a paraphrase strategy to show this. This strategy will be described in detail in chapter 4.

On the other hand, Cameron (2008a) has endorsed a truthmaker theory and held that the ontological commitments of a theory are just those things that must exist to *make true* the sentences of that theory. Those things can be something different from what is implied by those sentences. For example, 'x exists' may be true, even though x is not an ontological commitment of that theory. Several simples may make true that sentence.

Cameron (2008b) has noticed that even though he and van Inwagen agree on how the world is: all there is are atoms arranged certain ways, they disagree on the truth-values of existential statements about complex objects. While Cameron said that they are true sometimes, van Inwagen said that they are always false (although they are assertable when there are atoms arranged in certain ways)[69]. For Cameron, this is a violation of common sense, but there is no reason to admit it. The truth of these sentences must be denied if their truth is ontologically committing to complex objects. But Cameron has denied that. Those sentences can be literally true, but their truth commits us only to the simples arranged in certain ways. If we insist that their truth commits us to the existence of complex objects, we read our ontology off of our language and this is a mistake.

The literal truth of sentences about complex objects does not require there to be composite objects to make them true (Cameron, 2008a). Instead, all that is required to make them true are simples. Ontological questions (should we accept an ontology of composite objects?) should not be decided by facts about our language (e.g., is complex objects talk dispensable?). We should simply accept as a datum that sentences about complex objects are literally true. The real question is: what makes them true? Is an ontology of composite objects required to make them true? Whether or not we are ontologically committed to composite objects depends only on whether we need them as truthmakers. The dispensability of complex objects talk is irrelevant.

[69] I disagree with this interpretation of van Inwagen (1990). I think that according to van Inwagen, some sentences about complex objects are literally true in ordinary contexts. Still, I will describe Cameron's interpretation here to illuminate better his view.

While for Quine (1948), the ontological question is 'What is there?' and the answer is 'Everything', for Cameron (2010c), the ontological question is 'What is there, *really?'* and the answer is more complicated. There are some things that exist, but which do not really exist.

Fine (2001) distinguished between what there is and what there *really* is. Cameron (2008a) used this distinction, but he did not claim that he used it the same way as Fine used it.

> *"Let us say that a really (or, equivalently, fundamentally) exists iff we are ontologically committed to a, and that a exists, but doesn't really exist (or, equivalently, that a exists derivatively), iff <a exists> is true but is made true by something other than a. The claim, then, is that complex objects exist but don't really exist: what really exists are simply the simples. Complex objects don't really exist—the nihilist was right about how the world is. But the nihilist, traditionally, thought this meant that sentences concerning complex objects couldn't be literally true: at best they were assertable if they satisfied some subsidiary norm. She was wrong: all it takes for those sentences to be true—literally true—is for there to be the simples"* (Cameron, 2008a, p.6).

The distinction between mere existence and real existence is just a way of talking. It is not a distinction between privileged real existents and impoverished unreal existents. *"The rules of the language are that 'a really (or fundamentally) exists' is true iff a is an element of our ontology (read: iff a does some truthmaking); that 'a exists' is true iff <a exists> is made true by some thing(s); and that 'a merely (or derivatively) exists' is true iff <a exists> is made true but isn't made true by a"* (p.7). The answer to the ontological question is that all there is in the world are the real existents. Complex objects are no addition of being because the ontology needed to ensure their existence is just an ontology of simples.

I prefer to use the terms 'derivative' and 'fundamental' and distinguish between what there is derivatively and what there is fundamentally. Saying that simples really exist, while complex objects do not really exist but merely exist could raise confusion or an objection. If they do not really exist, they are not real. They do not exist in any way. It is better to focus on derivative and fundamental existence. This is not a substantive dispute. It is just a terminological dispute.

Why should we prefer Cameron's view over Quine's view? Cameron (2008a) has argued that ontological questions should not be decided by linguistic facts. For example, whether we are committed to composite objects should not be decided by whether or not sentences about them can be paraphrased away into plural quantification over simples[70]. There is something wrong with the Quinean idea that we have to reject the literal truth of sentences about composite objects if we want to avoid ontological commitment to them.

According to Cameron (2010c), facts about language should not drive our ontology. We should not read off features of the world from features of our representations of the world. We should not read ontology off of language. For example, from the truth of the sentence 'there is a hand', we cannot infer that there is a complex object that is a hand. If a sentence says something true, it is a true description of reality. But we should not decide what makes this sentence true by merely reflecting on the way we describe reality.

Cameron (2008b) has emphasised that it is wrong to take the truth of English sentences about complex objects to transparently reveal ontological facts. *"When we are doing ontology we are concerned with what there fundamentally is: and we cannot read this off from what English sentences are true—we must ask what makes them true"* (p. 303).

### 2.4.2. The Pragmatic Dimensions of Our Language and WCR

Why is it wrong to take the truth of English sentences about complex objects to transparently reveal ontological facts? Cameron has not said much about it. In my view, it is wrong because we use our language mainly for pragmatic reasons. For example, we developed and use our language to help us in our survival and expressing our emotions. When we developed our language, we did not aim to describe the fundamental structure of reality. It would be an enormous coincidence if we discovered the fundamental structure of reality without intending to do it. The way we talk is not a reason to believe that the sentences of our language pick out composite objects.

[70] In addition to the argument described in the text, Cameron (2019) has argued that if we follow the Quinean criterion of ontological commitment and can regiment our theories through different plausible logical systems (e.g., first-order logic, second-order logic), then these different logical systems ontologically commit us to different entities. This is a reason to reject the Quinean criterion of ontological commitment. Contra Quine, Cameron has not thought that we have a good reason to prefer the first-order logic as the logic of the language of regimentation.

True sentences ontologically commit us to the mentioned entities if our language is mainly used to pick out the fundamental structure of reality. But this is not the purpose of the English language, and hence, we should not expect to discover the fundamental structure of reality by merely analysing the true sentences of English.

There are various pragmatic reasons that can lead us to invent and use a certain word. In some cases, we use the same word to describe different things because they possess less-than-perfectly similar qualitative and dispositional properties, and as a result, we can use them in similar ways to accomplish our aims. For example, we call different things 'table' because they have less-than-perfectly similar qualitative and dispositional properties that allow us to use them for the same purposes (e.g., place things there). In other cases, we use the same word to describe different things because they interact with us in less-than-perfectly similar ways in virtue of their less-than-perfectly similar qualitative and dispositional properties. For instance, we call different things 'thorns' because they can all hurt us in similar ways.

Consider why people decide to use a specific word. People want to talk about things and creatures in their environment. They describe some things with the same word when they look less-than-perfectly similar to each other. It seems implausible to assume that speakers want to talk about the fundamental structure of reality all the time. Some people do not even have the concepts to talk about it. It seems perfectly fine to use the same word to describe less-than-perfectly similar entities. A word is easily applied to different entities. It seems unjustified to assume that our language transparently reveals ontological facts given that we can give this story of how our language is used.

Rayo (2009, p.243), inspired by late writings of Wittgenstein, also has similar thoughts about language and truth-conditions. He has noticed that assertions are tools for communications. For example, I organise a party and am thinking about the seating arrangement. I say that there will be an odd number of people at the table. I do not do this because I want to represent the structure of reality as somehow corresponding to the logical structure of the sentence. For instance, I do not intend to commit myself to a non-trivial ontological thesis about numbers and represent numbers as bearing a certain relation to people and the table. Instead, I just attempt to decide which table I should use. The point of my assertion will be fully satisfied if I decide to use the appropriate table for this circumstance.

For Rayo (2009), if assertions of sentences involving mathematical vocabulary are not intended to depict the structure of the world and the logical structure of atomic sentences should not correspond to the structure of the world, then the truth-conditions of these sentences do not need to involve abstract entities. The claim that our language represents the structure of reality is a doctrine that is not supported by our linguistic usage. *"*[O]*nce one abandons the doctrine that the logical structure of an atomic sentence must correspond to the structure of reality, there is room for a distinction between the semantic values of expressions occurring in a sentence—a piece of theoretical machinery used to explain how the meanings of complex expressions depend on the meanings of its parts—and the objects that must exist in order for the sentence's truth-conditions to be satisfied"* (p.243-244).

What about an alternative story? Maybe we labelled different things with the word 'stone' because they shared a property: the property of being a stone. This view implies that somehow, we were aware of a property that all these objects share. But I do not see that in my experience of perceiving stones. They are different things that look similar, and that is why I call them all stones. But it may be responded that they look similar because they have a property in common! This takes us to the one-over-many argument that goes back to Plato. I will not engage with this argument in detail, but I would remind the objector about Heil's alternative view: these different things look similar because each of them is simples arranged in certain ways that are less-than-perfectly similar to the rest. Heil's story has the advantage of being ontologically simpler. It is unclear why we should prefer Plato's view if there is an alternative one that is equally explanatory and ontologically simpler[71]. Heil's view has the following advantage: given that most of the time, we do not intend to depict the fundamental structure of reality when we communicate and that our language could have been developed otherwise, Heil's view does not rely on an enormous coincidence that made us talk in a way that depicts the fundamental structure of reality.

The alternative story seems unjustified. There are several possible ways that our language could have evolved. In a possible world, our language evolved to use different words and make different distinctions. In that world, we use two different words for stones: 'stone1' and 'stone2'.

[71] But is the alternative story ideologically simpler? In section 4.10.1, I will argue that a view that postulates the fundamental existence of composite objects is not ideologically simpler. A one-level-of-being view and a many-levels-of-being view are equally ideologically complex. So, there is not a reason to prefer one of them because of its ideological simplicity.

‘Stone1’ is used to talk about pointy stones and ‘stone2’ is used to talk about not pointy stones. Should we say that this language also transparently reveals ontological facts? It seems arbitrary to claim that only our language transparently reveals ontological facts. If we claim that all possible (coherent) languages transparently reveal ontological facts, then we are led to maximalism. According to this view, *“for any kind of object K, where* […] *there is some language such that “Ks exist” comes out true (where “exists” expresses this language’s existence-like concept), the maximalist says that Ks exist”* (Eklund, 2009, p.153). That is, if there is a language that can be used to express true existential sentences about K, then K exists.

This may be the kind of result that Cameron (2008a) worries about when he says that serious ontological questions should not be decided by linguistic facts. A very bloated ontology was accepted by merely considering possible languages. Even though there is nothing incoherent with maximalism, the ontological complexity of this view and how easily we were led to it may motivate us to search for alternative ways to decide which are our ontological commitments.

Let’s move now to a comparison of Cameron’s truthmaker theory with WCR. I believe that Cameron’s view can be combined with WCR. WCR can be a way to decide which entities exist fundamentally and which entities exist derivatively. If a higher-level property can be weakly conceptually reduced to physical properties, then it exists derivatively. If we cannot weakly conceptually reduce these physical properties to something else, then they exist fundamentally (except if we have a reason to think that they are ontologically reduced to other properties). For example, weak conceptual reductions of mental properties to physical properties can show that we do not need irreducible mental properties as truthmakers of sentences about mental properties. Therefore, mental properties exist derivatively.

## 2.5. Truthmaker Explanations

This section will develop some of my aforementioned views about truthmaker explanations, physicalism, conceptual reduction, and ontological free lunches in a new light by engaging with different philosophers. This may also help to make my views clearer. It will be argued that the truthmaker theory is explanatory even though it needs to be combined with other views.

2.5.1. Schulte on Truthmaker Explanations

I have argued that sentences about X can be true, even though they are not made true by the same entity. This is one kind of truthmaker explanation (a truthmaker explanation explains the truth of a sentence or proposition by mentioning its truthmaker(s)[72]). Looking at different kinds of truthmaker explanations will help us to understand better what is going on in the relevant metaphysical debates and why 'truthmaking' is a useful notion there. A relevant distinction was noticed by Schulte (2011). He distinguished between simple and substantial truthmaker explanations. I will describe these kinds of truthmaker explanations and make another distinction to develop my view even further. I will distinguish between terms and predicates that have only one truthmaker and terms and predicates that have multiple truthmakers. By doing that, I will explore further the relation between the truthmaker theory and two physicalist accounts (the a priori entailment view and the a posteriori entailment view). This will help us to analyse 'making true' and argue that the truthmaker theory has a unique work to do in order to solve certain metaphysical debates (the a priori entailment view or the a posteriori entailment view are not sufficient). The combination of the truthmaker theory with either the a priori entailment view or the a posterior entailment view, which results in WCR, is the best way to explain why an entity is an ontological free lunch.

An example of a simple truthmaker explanation is the following: *"<The rose is red> is true because the fact [The rose is red] exists"*[73] (Schulte, 2011, p.417). Simple truthmaker explanations are trivial. They are called 'simple' because *"the terms that are used to express the proposition in question (i.e. the truthbearer) are identical to the terms used in the description of its truthmaker"* (Schulte, 2014, p.249-250).

An example of a substantial truthmaker explanation is the following: *"<If Lauren turned around, she would have a sensory impression of a bookshelf> is true because the fact [There is a bookshelf behind Lauren] exists (and certain background conditions hold)"* (Schulte, 2011, p.417). In this example, the truth of a counterfactual conditional is explained by the existence of a non-modal fact. Substantial truthmaker explanations are informative.

[72] Or the lack of a truthmaker in the case of Rayo (2009). He argued that this is the case for mathematical truths.
[73] "<p>" is an abbreviation of "the proposition that p", and "[p]" is an abbreviation of "the fact that p".

While substantial truthmaker explanations remain explanatory after removing the truth-predicate, the "<", and the ">", simple truthmaker explanations do not. *"The rose is red because the fact [The rose is red] exists"* (p.418) does not seem to be a genuine explanation. However, *"If Lauren turned around, she would have a sensory impression of a bookshelf because the fact [There is a bookshelf behind Lauren] exists"* (p.418) seems to be a good explanation.

For Schulte (2011, p.419), substantial truthmaker explanations *"combine two different explanations: the explanation of a truth by a fact, and the explanation of one fact by another fact"*. The above example *"is really a contracted version of these two explanations: (3a) <If Lauren turned around, she would have a sensory impression of a bookshelf> is true because the fact [If Lauren turned around, she would have a sensory impression of a bookshelf] exists. (3b) The fact [If Lauren turned around, she would have a sensory impression of a bookshelf] exists because the fact [There is a bookshelf behind Lauren] exists"*.

*"In general, a substantial truthmaker explanation of the form "<p> is true because [q] exists" is a combination of an explanation of the form "<p> is true because [p] exists" and an additional explanation of form "[p] exists because [q] exists". The first explanation is simple* […], *the second is substantial"* (p.419). In other words, *"every substantial truthmaker explanation is a combination of (i) a simple truthmaker explanation and (ii) a reductive explanation"* (p.422).

Given these two different kinds of truthmaker explanations, 'making true' can be defined as follows: *"(DR) x makes <p> true iff (i) x is identical with [p] or (ii) x reductively explains [p]"* (Schulte, 2011, p.422). The first clause covers simple explanations, and the second clause covers substantial explanations.

For Schulte (2011), truthmaker theorists should appeal to a specific theory of reduction to clarify what substantial truthmaker explanations are. A specific theory of reduction must be mentioned to present the specific conditions that something must satisfy to provide a reductive explanation for [p]. Schulte's preferred theory of reduction is the a priori entailment view (i.e., the conceptual entailment approach) that was described in chapter 1.

If we combine (DR) with the conceptual entailment approach to reductive explanation, the definition of 'making true' changes to the following:

*"(DCE1) x makes <p> true iff (i) x is identical with [p] or (ii) <x exists> conceptually entails <p>.*

*Since <[p] exists> obviously entails <p>, we can simplify the definition by dropping the redundant first clause, thus arriving at (DCE2):*

*(DCE2) x makes <p> true iff <x exists> conceptually entails <p>"* (Schulte, 2011, p.425).

Schulte (2011) has provided more complex definitions to solve certain problems, but we do not need to talk about them for our present purposes.

Schulte (2014) has argued that his reductive explanation account of truthmaking should be preferred because it explains why substantial truthmaker explanations about X motivate the belief that X is an ontological free lunch better than the competing approaches to truthmaking (modal theories and grounding theories). For Schulte (2014, p.261), *"x is an ontological free lunch (relative to y) iff x is reductively explained by y"*.

### 2.5.2. Single-Truthmaker and Multiple-Truthmakers Truthmaker Explanations

A different distinction is between multiple-truthmakers truthmaker explanations and single-truthmaker truthmaker explanations. Multiple-truthmakers truthmaker explanations are truthmaker explanations that are available when one type of sentence is made true by different entities on different occasions. This is what Schulte (2011, p.421) has described briefly as a fact being multiply realisable. He has given the example of a modal fact expressed by a counterfactual: different non-modal facts can realise a modal fact.

For example, the *"counterfactual "If Lauren turned around, she would have a sensory impression of a bookshelf" could hold for many reasons: because of a hologram projected into space behind Lauren, because of a neurological disorder of Lauren that makes her see bookshelves whenever she turns her head, or—as in our case—because there really is a bookshelf behind her"* (Schulte, 2011, p.421).

Schulte has claimed that this phenomenon is in the nature of substantial explanations, but I think this is only contingently so or it is not even actually so. It may actually be the case that whenever we give this kind of explanation, there are multiple actual or possible truthmakers, but

it does not need to be so. Imagine that sentences about 'human pain' are always made true by the firing of the same neurons because this is the only way that humans can feel pain. Still, this is a substantial explanation because it is informative. We need to use a different vocabulary to describe the truthmakers of sentences about 'human pain' or what human pain is identical with.

Single-truthmaker truthmaker explanations are truthmakers explanations that are available when one type of sentence is made true by the same entity or entities on all occasions. 'Human pain', as it was described above, may be one example of this kind of explanation.

By thinking about multiple-truthmakers truthmaker explanations, we can find a reason to analyse 'making true' differently. For Schulte (2014, p.261), *"<p> is made true by [q] iff [p] is reductively explained by [q]"*. But how is this related to the multiple-truthmakers argument? Suppose that the multiple-truthmakers argument is true and there are different truthmakers of <p> on different occasions. We miss something important about <p>[74] by only doing the above analysis of 'making true'. The above analysis is correct when we analyse a particular sentence that expresses <p>. But it does not say anything about the different facts that make <p> true on different occasions and the similarity between the different truthmakers of <p>.

Instead, we can get inspired by WCR and say that <p> is made true by [q1] or [q2] or [q3] or other less-than-perfectly similar facts iff [p] is reductively explained by [q1] or [q2] or [q3] or other less-than-perfectly similar facts. This way the variety of actual truthmakers for <p> is made known. Every time <p> is true, it is made true by one of these q facts or a less-than-perfectly similar one. Our reason to believe this is that [p] is reductively explained by those facts.

If the number of actual truthmakers of <p> is finite, an omniscient being would not need the similarity clause as it could know all the actual truthmakers of <p>. Given our limitations, providing a conceptual reduction by using the notion of similarity allows us to have an idea of how we can decide whether novel cases can be described correctly as <p>.

[74] In this section, I develop my view by talking about propositions and facts instead of sentences, objects, and properties (my preferable way of talking about these issues). This is done just for ease of exposition. Similar remarks could be developed if we talked about sentences, objects, and properties instead. See Heil (2003, 2012) for reasons to use my preferable way of talking.

2.5.3. Physicalism, Ontological Free Lunches, and WCR

It may be argued that any physicalist and conceptual reductive account should fulfil two desiderata:

D1: It must be explained why the conceptually reduced entities are ontological free lunches.

D2: It must be explained why physicalism is true.

I have already argued that multi-descriptional physicalism and WCR fulfil D1 and D2, but now, I will re-examine these issues by exploring an objection to the truthmaker theory that was suggested by Morris (2018). This will help to make my views clearer and show their explanatory power.

Morris (2018) has objected to truthmaker theorists, such as Heil (2003, 2012), Cameron (2008a, 2010b), and Schulte (2011, 2014) by claiming that *"it appears that truthmaking is not doing any distinctive work in understanding physicalism or in making sense of the place of putative higher-level items in the physical world"* (p.476). For example, for Schulte, the a priori entailment view needs to be mentioned to understand what physicalism is and why higher-level entities are ontological free lunches. The truthmaking notion seems to do no work. *"The concern, in short, is that the truthmaking physicalist's appeal to truthmaking does not obviate the need to give an account of higher-level items, and that once this is accepted, it is just not clear how understanding physicalism in terms of truthmaking can really be thought to make an advance on more standard approaches"* (p.476). For example, statements like 'There is a tomato' appear to entail that higher-level items exist, even if they are made true by physical simples. The a priori entailment view is needed to show why tomatoes are ontological free lunches and it is a wonder why the truthmaker theory was mentioned in the first place. *"This is especially the case if one holds, as Heil apparently does, that truthmaking is a kind of primitive that cannot be explicated in other terms"* (p.477).

I think there is still work for the truthmaker theory. My WCR account is an example of using the notion of truthmaking to make our metaphysical theory more explanatory. We can explain better why sentences involving a higher-level predicate can be made true by a variety of physical properties by using WCR rather than just saying that this predicate refers to various physical properties. This is the case because the variety of truthmakers is explained by listing the less-than-

perfect physical similarities between them. We also need the notion of truthmaking and similarity to make it clear that ontological reducibility does not imply identity.

WCR is the best way to show why an entity is an ontological free lunch. A simple truthmaker theory is not sufficient because of Morris' argument. An a priori entailment view or an a posteriori entailment view is not sufficient because of the multiple-realisability argument. Only when we combine the truthmaker theory with either the a priori entailment view or the a posteriori entailment view, which results in WCR, we can show why a higher-level entity is nothing over and above the physical.

Truthmaking will also be found to be a useful notion in chapter 4. Even if we can conceptually reduce higher-level objects and properties to physical objects and properties, it may be asked to explain why certain sentences about higher-level objects are true in a one-level-of-being ontology. I will argue that the truthmaking notion is needed to give such an explanation. Nihilist-friendly truth-conditions of sentences about higher-level objects will be given by using the notion of truthmaking. I think we cannot do this otherwise.

I do not think that Morris will find the truthmaker theories that I develop problematic. He has emphasised that *"perhaps any comprehensive philosophical position will have to say something about how language relates to reality. My concern is specifically about whether a particular world-language relation, truthmaking, can be used to understand a particular metaphysical position, physicalism. Heil and Cameron also claim that truthmaking can help to distinguish linguistic and conceptual issues from metaphysical ones. I do not believe that anything that I have said directly contravenes this proposal, though admittedly the ''problem of higher-level entities''* […] *suggests that it is not obvious how truthmaking is supposed to accomplish this result.* […] [Further,] *it is consistent with my arguments that truthmaking can be utilized to undermine a reason for positing higher-level properties, states, and entities—namely, that they are needed as truthmakers"* (Morris, 2018, p.481).

WCR is used to show that higher-level properties are not needed as truthmakers despite the multiple-realisability argument. My truthmaker theory account in chapter 4 will be used to show that true sentences about higher-level objects do not show that composite objects are needed as truthmakers.

The discussion so far showed that WCR can explain why the conceptually reduced entities are ontological free lunches, and so, it fulfils D1. Moreover, I will argue that even though the truthmaker theory is not needed to explain why physicalism is true, it can provide a new way to understand reductive physicalism when it is combined with type-A physicalism or type-B physicalism.

So, how can we understand physicalism? For Morris (2018, p.475), according to truthmaking physicalism, *"physicalism is true just in case all truths about the world that have truthmakers are made true by how things are physically"*. But he has argued that this physicalist thesis is problematic: it is not explained why higher-level entities are ontological free lunches. Morris could say that physicalism is true if all truths about the world that have truthmakers are conceptually entailed by physical truths (this is type-A physicalism).

The truthmaker theory is not needed to explain why physicalism is true. The truthmaker theory by itself cannot explain satisfactorily why physicalism is true. Still, if we can infer a priori or a posteriori all higher-level truths from physical truths, we have a good reason to believe that physicalism is true.

This is sufficient for physicalism, but not for reductive physicalism. The multiple-realisability argument may push us towards non-reductive physicalism. If a higher-level predicate has multiple truthmakers, WCR is needed to explain why multiple truthmakers do not imply an irreducible property. Therefore, even if we do not need the truthmaker theory to explain why physicalism is true, we need the truthmaker theory to explain why reductive physicalism is true.

My thesis concerning physicalism in section 2.1.3 could be seen as a definition of reductive physicalism:

*Reductive* physicalism is true, if every higher-level truth that has truthmakers is weakly conceptually reduced to physical truths.

We can remove 'reductive' and understand physicalism this way, but the truth of physicalism is explained by the a priori or a posteriori entailments involved in the weak conceptual reductions. That is how we know that physicalism is true. The weak conceptual reductions, a kind of truthmaker theory, contribute to understanding *reductive* physicalism.

If reductive physicalism is true because every higher-level truth that has truthmakers is weakly conceptually reduced to physical truths, then truthmaking physicalism is true. In other words, the WCR account of reductive physicalism explains why truthmaking physicalism is true.

This ends my presentation of whether truthmaker theory can fulfil D1 and D2.

## 2.6. Conclusion

In this chapter, I have argued that WCR can be applied to and be useful in various debates. First, it can help us to explain why reductive physicalism is true, and it can be used to define reductive physicalism. Second, it can be used to reject the multiple-realisability argument and motivate a multiple-truthmakers argument instead. Furthermore, it can be used to show that non-reductive physicalists do not succeed in defending the multiple-realisability argument and identity theorists cannot reject the multi-realisability argument satisfactorily. Moreover, the prototype theory of concepts and Cameron's truthmaker theory have certain connections with WCR. Last but not least, WCR can explain why higher-level entities are ontological free lunches. These applications of WCR should motivate us to examine further WCR and make sure it succeeds in the above tasks.

## 3. A New Argument for the Fundamental/Derivative Distinction Thesis

### 3.1. Introduction

There are different views that distinguish between fundamental and derivative reality (e.g., Cameron's view that was described in section 2.4). The common idea is that while fundamental entities exist and we are ontologically committed to them, derivative entities exist but are no addition of being (i.e., they are not extra elements in our ontology)[75]. I will call metaphysical views that use this distinction 'fundamental/derivative views'.

I am sympathetic to fundamental/derivative views. I have already defended one fundamental/derivative view in chapter 1 (WCR), and I will describe another one in chapter 4 (a particular truthmaker theory). The aim of this chapter is not to defend any particular fundamental/derivative view, but rather to argue that we should understand some of the aims of metaphysics through the fundamental/derivative distinction: metaphysics should partially be about discovering the fundamental entities (or the fundamental entity) and explaining why they suffice for the existence of derivative entities (this is the Fundamental/Derivative Distinction Thesis). I spell out this thesis in section 3.2.

But the argument for the Fundamental/Derivative Distinction Thesis is complex and relies on controversial premises. I will therefore begin, in section 3.3, with a weaker argument: an argument for the Addition/No-Addition Distinction Thesis. This argument is weaker because it relies on the truth of fewer views. It will be used to argue that there are entities that are an addition to being and there are other entities that are no addition to being.

These two arguments rely on the truth of various views. They will be described in sections 3.4-2.6. In section 3.4, I will present different anti-Humean accounts of causation. In section 3.5, I will present Kim's supervenience/exclusion argument, and in section 3.6, the Eleatic Principle/Alexander's Dictum will be described.

[75] Here, I follow Cameron (2008a, p.6) on saying that something can exist even if we are not ontologically committed to it. Existence claims can be made true by something else than what is being said to exist. So, it is false to say that X exists iff we are ontologically committed to X. I will use this notion of existence to develop my argument for the Fundamental/Derivative Distinction Thesis. Still, nothing depends on this specific notion. In section 3.9, I will briefly describe a modified version of my argument that does not rely on how I use 'exist'.

That will allow us to discuss the argument for the Fundamental/Derivative Distinction Thesis in sections 3.7 and 3.8. For the sake of giving an example, the argument will be developed by assuming the truth of a reductive microphysicalist view, but proponents of other versions of reductive physicalism, idealists and panpsychists, which accept the fundamental/derivative distinction, can use a modified argument to support the Fundamental/Derivative Distinction Thesis. The conclusion could also be that there are fundamental and derivative entities, but more has to be done to decide which are the fundamental entities and which are the derivative entities. I will end the chapter by discussing some consequences and implications of the Fundamental/Derivative Distinction Thesis.

## 3.2. The Fundamental/Derivative Distinction Thesis

Cameron (2008a, 2008b, 2010c), Schaffer (2009), and I agree that we are ontologically committed only to metaphysically independent[76] entities. Still, we claim that other entities exist too. We develop this idea in different ways. Cameron (2008a) argued that there are entities that exist fundamentally and other entities that exist derivatively. Schaffer (2009) argued that there is a fundamental entity (the whole universe) and derivative entities that are grounded in the former (his view will be presented in detail in chapter 6). I say that there are physical entities and there are different ways to describe them. I focus more on the pragmatic aspects of our language and why our language does not ontologically commit us to the entities that we mention.

We all try to describe a '*Fundamental/Derivative Distinction'*. That is, the fundamental exists and ontologically commits us to certain entities; the derivative exists, but it does not ontologically commit us to additional entities. In other words, X is fundamental, iff it exists and is an addition of being. X is derivative, iff it exists, but it is no addition of being[77]. It is true to say

[76] Remember that X is metaphysically independent, iff X does not metaphysically depend on anything. By 'metaphysical dependence', I refer to any metaphysical dependence relation (e.g., grounding, realisation).

[77] Not everybody defines 'fundamental' and 'derivative' this way. Some people define the fundamental as the ungrounded and the derivative as the grounded (e.g., Schaffer, 2009). If we follow my definitions, a grounded entity can be fundamental (e.g., a phenomenal property) and an ungrounded entity can be derivative (e.g., a part of a fundamental, ungrounded, extended particle). My definitions can allow emergent properties to be both fundamental and grounded (see Barnes, 2012).

I use these terms differently because of my aims: I want to defend a sparse ontological view that allows for various things to exist. Another advantage of my way to define 'fundamental' and 'derivative' is that it allows us to explain emergent properties as both fundamental and ontologically dependent/grounded (see Barnes, 2012).

that something exists even if it is not an addition of being because sentences about it are made true by fundamental entities.

I understand the fundamental/derivative distinction in a deflationary manner instead of an inflationary manner (for an explanation of this distinction, see Cameron, 2014, p.100[78]). According to the deflationary conception, derivative entities are neither addition of being, nor do they inherit their being from fundamental entities. Talk about derivative entities is just an easy way to describe the fundamental entities. Sentences about them are made true by fundamental entities. However, derivative entities, under the inflationary conception, have being *"(an account of reality could not be complete and correct if it failed to mention them)"* (Cameron, 2014, p.100). They inherit this being from the fundamental entities because they are grounded in them. *"On the deflationary conception, derivative entities have no being, a fortiori they are no addition to being over the fundamentals; on the inflationary conception, derivative entities have being but it is entirely inherited from the fundamentals, and so they are no addition to being"* (Cameron, 2014, p.100).

While Schaffer (2009) and Cameron (2014) have endorsed the inflationary conception, I endorse the deflationary one. The deflationary way to understand the derivative entities avoids problems presented by Turner (2016, p.382) and faced by the inflationary conception of the derivative. Still, I think that my argument for the Fundamental/Derivative Distinction Thesis can be used to motivate both ways to understand this distinction.

When I present this argument, I will use the deflationary conception of the derivative. If I had been using the inflationary conception, some of the premises of the argument would have been developed differently and others would have been removed (I will talk about those differences in section 3.9).

I will suggest a new argument for the *Fundamental/Derivative Distinction Thesis*: the view that giving a true metaphysical account of every entity by using the fundamental/derivative distinction is what metaphysics should partially be about. According to this thesis, metaphysics

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According to Barnes (2012), this way to characterise emergence avoids problems faced by other ways to explain emergence.

Lewis (1983) and Turner (2016, p.374) have suggested defining fundamental properties as the perfectly natural properties. This is compatible with my view if every perfectly natural property is an addition of being and no other property is an addition of being.

[78] See also von Solodkoff & Woodward (2013).

should partially be about discovering which entities are fundamental and explaining why the fundamental entities suffice for the existence of derivative entities. This thesis is normative, not descriptive. It admits that some metaphysicians do not do metaphysics this way, but it advises them to reconsider their metametaphysical stances (I will talk more about the metaphysical and metametaphysical implications of this thesis in section 3.9).

I have said that metaphysics should *partially* be about giving a true metaphysical account of every entity by using the fundamental/derivative distinction and I want to emphasise this. Metaphysics is and should be about other things too.

A lot of metaphysics aims to discover the nature of something: free will, time, persons, causation, laws of nature, and so on. This does not involve figuring out how these things, if derivative, relate to microphysics (or whatever the base turns out to be). Granted, we could figure out how a microphysical configuration sufficed for free will, we may thereby know the nature of free will. But I doubt we could discern this base prior to figuring out the necessary and sufficient conditions for free will. Without prior knowledge of such conditions, we would not know where to begin when searching the base. And this prior knowledge will require a kind of metaphysics (perhaps conceptual analysis, perhaps conceptual engineering) that will not engage the fundamental/derivative distinction. Theorising about freedom's relation to the base, if needed at all, may come last, but in any case, it would not be the whole of the metaphysics of free will. Other things metaphysics studies may turn out to be fundamental, such as causation. But even here, discovering that something is fundamental is not the end of metaphysical theorising about it. Even if causation is fundamental, this does not tell us whether causation is a kind of necessitation, whether it has a direction, and so on. Again, there is more to proper metaphysics than what the Fundamental/Derivative Distinction Thesis is talking about.

Still, the Fundamental/Derivative Distinction Thesis highlights a major metaphysical task. Giving an account of every entity by using the fundamental/derivative distinction thesis helps us to describe the objective structure of reality.

Before presenting the argument for the Fundamental/Derivative Distinction Thesis, I will present a weaker argument and the views that are mentioned in this argument. The triviality of some existence debates in metaphysics, the exclusion argument and the Eleatic Principle will be described because they are reasons to believe some of the premises. If somebody agrees with this

weaker argument, a few views must be added to conclude that the Fundamental/Derivative Distinction Thesis is true.

The triviality of some existence debates in metaphysics will briefly be discussed in this section. In the next sections, I will present the weaker argument and other views.

Following Schaffer (2009), I consider existence debates in metaphysics trivial. That is, the entities in question obviously exist (still, it is not trivial whether they are fundamental). Schaffer considered trivial, among other things, the existence of properties and mereological composites. Concerning mereological composites, he has given the following anti-nihilist proof of the existence of mereological composites:

[a] *"My body has proper parts (e.g., my hands).*

[b] *Therefore there are things with proper parts"* (Schaffer, 2009, p. 358).

He has considered (a) a biological banality. *"It commands Moorean certainty, as being more credible than any philosopher's argument to the contrary. Any metaphysician who would deny it has ipso facto produced a reductio for her premises"* (Schaffer, 2009, p. 357). (b) follows immediately. Thus, mereological composites exist. Similar remarks can be stated about other existence debates[79].

From the triviality of some existence debates in metaphysics, we can infer that mental, biological, chemical, and physical entities exist. This inference is neutral on whether there are only levels of description and abstraction or there are also levels of being. In support of this view, we have our ordinary sentences about these entities that we consider true. We have seen already reasons to believe that these sentences are true even if we are ontologically committed only to physical entities (chapter 1, Heil, 2003, 2012; Cameron, 2008a, 2008b). Another argument for this claim will be provided in chapter 4.

[79] Still, Schaffer (2009) has emphasised that his permissive stance on existence has limits. *"For instance, if a candidate entity is described in such a way as to entail grounding information (e.g., ''a Platonic number,'' understood as a transcendent substance), or so as to engender contradictions (e.g., ''a non-self-identical creature''), one need not remain permissive"* (p.359).

## 3.3. An Argument for the Addition/No-Addition Distinction Thesis

The argument for the Fundamental/Derivative Distinction Thesis relies on many controversial premises. Because of that, in what follows, I will examine what we can conclude if we have weaker and fewer premises. The views presented here will be described in the next sections. These views will also be mentioned in the argument for the Fundamental/Derivative Distinction Thesis. Here, I will briefly present a weaker argument that has weaker conclusions. I will present the argument for the Fundamental/Derivative Distinction Thesis in section 3.7 by building on the ideas that will be described here.

The weak argument concludes that some things exist which are no addition to being. This gives us the "Addition/No-Addition Distinction Thesis": there are things that exist and are an addition to being, and there are things that exist and are no addition to being.

a. 'Addition to Being' requires irreducible causal powers.
b. Some entities exist which do not have irreducible causal powers.
c. Therefore, some entities exist which are no addition to being.

Premise (a) is supported by Eleatic Principle/Alexander's Dictum (*"to be real, new, and irreducible* […] *must be to have new, irreducible causal powers"* (Kim, 1993/2003, p.204), see section 3.6). Premise (b) is supported by the view that some existence debates in metaphysics are trivial (this view was discussed in section 3.2) and the exclusion argument (see section 3.5). The conclusion follows from (a) and (b).

For example, consider properties. From the triviality of some existence debates in metaphysics, we get that mental, neurological, biological, chemical, physical properties exist. The exclusion argument tells us that those properties seem to be in a causal competition. For instance, a mental and a neurological property seem to cause the same event. But it seems unlikely that this is a case of genuine overdetermination. Therefore, we have a reason to think that only one of these properties caused the event and the causal powers of the other property can be reduced to the causal property. This thought can be generalised, and we can conclude that many properties do not have irreducible causal powers (premise b). From premise (a), we get that only properties that have irreducible causal powers are an addition to being. This brings us to the conclusion that some properties exist which are no addition to being.

The Addition/No-Addition Distinction Thesis just says that there are entities that are an addition to being, and there are also other entities that are no addition to being. It is neutral on whether there are different levels of being. It is also neutral on whether the entities that are an addition to being are physical, idealist, or something else.

Imagine that I argue that only physical entities are additions of being. It might be objected that mental properties are also an addition to being since they are ontologically reducible to physical properties and those physical properties are an addition to being. But that is not what I mean by 'addition to being'. Mental properties are no addition of being because given the physical properties, there is not any other additional entity out there (that is the way that I use 'addition to being'). The mental vocabulary does not pick out irreducible entities. Some existent entities are no addition to being in this sense.

We can say similar things for 'irreducible causal powers'. Imagine that I argue that only physical entities have irreducible causal powers. It might be objected that mental properties have also irreducible causal powers because they are ontologically reducible to physical properties that have irreducible causal powers. But in the way that I use 'irreducible causal powers', mental properties do not have irreducible causal powers because the physical properties give us all the causal powers that are out there. Mental vocabulary does not pick out irreducible causal powers. That is how I use 'irreducible causal powers'.

I take the Addition/No-Addition Distinction Thesis to be compatible with both the identity theory and fundamental/derivative views. Physical entities may be the only additions to being and higher-level entities can be identical to them or derivative. The argument for the Fundamental/Derivative Distinction Thesis will be presented to argue for the truth of a fundamental/derivative view and the falsity of one-many identity theories.

In what follows, I will describe the metaphysical and metametaphysical views presented in the argument for the Addition/No-Addition Distinction Thesis and some other views that will be used to formulate the argument for the Fundamental/Derivative Distinction Thesis. As we will see, this argument is stronger because it depicts a more general picture of metaphysics and includes more premises.

## 3.4. Metaphysics of Laws of Nature and Causation

In the next three subsections, I will present Armstrong's universals theory of laws of nature[80], the productive account of causation, and the view that causation is the mutual manifestation of reciprocal powers. These views will be mentioned when I describe Alexander's dictum, the exclusion argument, and my argument for the Fundamental/Derivative Distinction Thesis.

All these views are anti-Humeans concerning causation or laws of nature.

Humean views of causation include the idea that causation does not involve any necessary connection. Lewis (1986, p. ix-x) has described this view in the following way: *"Humean supervenience is named in honor of the greater denier of necessary connections. It is the doctrine that all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another.* […] *We have geometry: a system of external relations of spatio-temporal distance between points. Maybe points of spacetime itself, maybe point-sized bits of matter or aether or fields, maybe both. And at those points we have local qualities: perfectly natural intrinsic properties which need nothing bigger than a point at which to be instantiated. For short: we have an arrangement of qualities. And that is all. There is no difference without difference in the arrangement of qualities. All else supervenes on that".*

This view implies that there are no extra, irreducible external relations, besides the spatio-temporal ones. Laws are not relations between universals. Lewis (1973a, 1986), following Ramsey, suggested that *"the laws are the* [exceptionless regularities] *that buy into those systems of truths that achieve an unexcelled combination of simplicity and strength"* (1986, p. xi). Regularities supervene on the arrangement of qualities.

Lewis (1973b, 1986) has analysed causation in terms of counterfactual dependence between events. Humeans agree that causation should be analysed this way, but they disagree on how exactly this idea should be developed. The counterfactual account of causation will be briefly presented in section 3.4.2.

[80] See also Dretske (1977) and Tooley (1977) for similar views.

We will explore anti-Humean views that suggest that causation or laws of nature are something more than what Humeans think. Some of them involve necessary connections. Under perfectly similar conditions, the same effect will always occur. This is the case because causation involves necessitation relations between universals (Armstrong) or properties that are both qualitative and dispositional (Heil). A different view is also anti-Humean because it claims that causation involves the transference of energy from the cause to the effect (productive accounts of causation – Fair, Dowe, Kim).

### 3.4.1. Laws of Nature as Necessitation Relations Between Universals

Firstly, Armstrong's anti-Humean account of laws of nature will be described. Armstrong (1983, p.77) has analysed *"It is a law that Fs are Gs"* as *"It is physically necessary that Fs are Gs"* (i.e., it is a contingent necessity that Fs are Gs). This can be true only if F and G are universals and laws are necessitation relations between universals. *"If F and G are related by a dyadic relation, a relation whose terms are confined to these two universals, then it cannot be that they have this relation at one time or place, yet lack it at another. The universals F and G are exactly the same things at their different instantiations. They cannot dissolve into different F-nesses and G-nesses at different places and times: if they do, we are not dealing with unitary universals, that is, with universals"* (p.79). *"[I]f it is the case that N(F, G), that is if being an F necessitates being a G, then it must be the case that each F is a G"* (p.80).

'N(F, G)' is taken as *"*[s]*omething's being F necessitates that same something's being G, in virtue of the universals F and G"* (Armstrong, 1983, p.96). N is a real, irreducible, necessitation relation that holds between the universals F and G.

This relation is contingent because in different possible worlds, N(F, G) may not be the case. Even though universals F and G can be differently related in different worlds, they cannot be differently related at different times and places in the same world. If the latter was possible, different phases of the two universals would have to be present at different times. However, this is impossible for universals.

A universal is something that is strictly identical, strictly the same, in all its different instances. Properties and relations are universals. *"A property must be a property of some real*

*particular; a relation must hold between real particulars"* (p.82). There are no uninstantiated universals.

### 3.4.2. Two Concepts of Causation

Anti-Humeanism about causation can also be true if the productive account of causation is true. I will present this view and an alternative, the counterfactual account of causation. The counterfactual account of causation will be relevant in section 3.7.

Hall (2004) has explained these two accounts very clearly. He has distinguished between two concepts of causation: the "dependence" and "production" concepts. "Dependence" is counterfactual dependence between distinct events. For instance, *"event c is a cause of (distinct) event e just in case e depends on c; that is, just in case, had c not occurred, e would not have occurred"* (p.225). Counterfactual analyses of causation agree with the following thesis: *"Dependence: Counterfactual dependence between wholly distinct events is sufficient for causation"*. It may also be claimed that dependence is *necessary* for causation, but it fails as a general analysis of causation. Those analyses differ on what must be included to provide necessary and sufficient conditions for causation.

We use the 'production' concept when we say that an event *c* helps to *generate* or *bring about* or *produce* another event *e*.

For Hall (2004), there are three general theses about causation:

*"Transitivity: If event c is a cause of d, and d is a cause of e, then c is a cause of e.*

*Locality: Causes are connected to their effects via spatiotemporally continuous sequences of causal intermediates.*

*Intrinsicness: The causal structure of a process is determined by its intrinsic, non-causal character (together with the laws)."* (p.225).

Hall (2004) has explained Intrinsicness in the following way. Suppose an event *e* occurs at time *t´*. Then consider the structure of events that consists of *e* and all of its causes back to some arbitrary earlier time *t*. The way the constituent events happen and their spatiotemporal relations

to one another determine the intrinsic character of that structure. That structure has a specific causal character. Each of the constituent events, except *e*, is a cause of *e*. *"Then the Intrinsicness thesis states that any possible structure of events that exists in a world with the same laws, and that has the same intrinsic character as our given structure, also duplicates this aspect of its causal character-that is, each duplicate of one of e's causes is itself a cause of the e-duplicate"* (p.239).

The simple counterfactual analysis was described the following way:

*"Event c is a cause of event e iff*

*(i)* *c and e are wholly distinct events;*

*(ii)* *Oc, Oe, and ¬Oc □→ ¬Oe are all true"* (p.233).

'O' means that an event occurs and '□→' represents the counterfactual or subjunctive conditional (read: "were it the case that …. then it would be the case that ….").

Hall (2004) has suggested that we need both concepts of causation: *Dependence* and *Production*. Our concept of event-causation is equivocal. *Dependence* and *Omissions ("Omissions: Omissions-failures of events to occur-can both cause and be caused"* (p.226) characterise one causal notion, while *Locality*, *Intrinsicness*, and *Transitivity* characterise another.

Counterfactual analyses should be understood as just one *kind* of event-causation. Consider the case that we have two wholly distinct events, and if the first had not happened, then the second would not have happened. It seems fine to say *"that it is in part <u>because</u> the first happened that the second happened, that the first event is partly <u>responsible</u> for the second event, that the occurrence of the first event helps to <u>explain</u> why the second event happened, and so on"* (Hall, 2004, p.253, underlying added). We do not reverse these claims, even if we notice that the dependence arises because of double prevention. All of these locutions are causal locutions, and they are appropriate because the second event counterfactually depends on the first event. This relation cannot be used to construct a full-blown analysis of causation because it analyses only one kind of causation. Still, counterfactual dependence between wholly distinct events is sufficient for causation.

While counterfactual dependence is causation in one sense and *Transitivity*, *Locality,* and *Intrinsicness* are all false in that sense, they are true in another sense: the productive one. Cases of

overdetermination reveal one way the concepts of dependence and production can come apart: they uniformly exhibit production without dependence. However, cases of double prevention and causation by omission reveal another way the two causal concepts can come apart: they uniformly exhibit dependence without production.

According to productive accounts, causation involves the transfer of some sort of quantity from the cause to effect. Fair (1979) and Castaneda (1984) have talked about energy flow. Dowe (2000) and Salmon (1994) allow it to be any sort of quantity that is, according to the fundamental physical laws, conserved. Ehring (1997) takes causation to consist (at least in part) in the transfer of tropes, i.e., particularized properties. For example, according to Kim (2007, p. 236), *"causal processes* […] *involve real connectedness between cause and effect, and the connection is constituted by phenomena such as energy flow and momentum transfer, an actual movement of some (conserved) physical quantity"* (Kim, 2007, p. 236).

### 3.4.3. Causation as a Mutual Manifestation of Reciprocal Powers

Another anti-Humean account of causation is the dispositionalist account of causation. There are different philosophers that support the view that causation involves dispositional properties, but I will present Heil's view as it is the one that I am more sympathetic to. This view is inspired by Martin (2008).

For dispositionalists (Bird, 2007; Heil, 2003, 2012; Shoemaker, 1980, 1998, 2007), dispositionalities are built into properties. According to Heil (2003, 2012), intrinsic properties, which are both qualitative and dispositional[81] (i.e., powerful qualities), of concrete spatio-temporal objects endow their possessors with powers or dispositionalities. These powers exist even if they are not manifested. For example, a sugar cube is water soluble by virtue of possessing a certain property. It is impossible for an object to possess this property and not be water soluble. While it is convenient to describe dispositions by referring to their actual and possible manifestations, dispositions are not relational properties. They are intrinsic to their possessors.

[81] This differentiates him from the rest, except Martin, that think that properties are merely dispositional.

Heil (2003) has used *"'qualitative' to designate intrinsic qualitative properties of objects, properties often classified as 'categorical'* [and] *'dispositional' to designate properties that bestow powers on their possessors in the following sense: it is solely by virtue of possessing a given dispositional property that an object possesses a given power. Dispositional properties* […] *have their powers 'built in'"* (p.79).

Heil (2003) has proposed the following identity theory *"(IT) If P is an intrinsic property of a concrete object, P is simultaneously dispositional and qualitative; P's dispositionality and qualitativity are not aspects or properties of P; P's dispositionality, P d, is P's qualitativity, P q, and each of these is P:P d=P q=P"* (p.111).

For example, solidity endows its possessors with qualities and powers (e.g., being impenetrable). Being white is a qualitative property because it has a certain qualitative character, and it is also dispositional because an object looks white in virtue of being white. Being white is an object's power that affects us in particular ways.

It is convenient, but it could be misleading to describe properties as *"both powers and qualities. Rather, properties are taken to contribute in distinctive ways to the dispositionalities and qualities of their possessors. The dispositionalities and qualities possessed by a given object depend on its ensemble of properties. A key of a certain size and shape will open a lock, but only if it is sufficiently rigid; a ball made of soft dough at room temperature will not roll"* (Heil, 2003, p.112).

Causation is understood as the mutual manifestation of reciprocal powers possessed by objects (Heil, 2012). *"In virtue of being as it is, each power would manifest itself in a particular way with particular kinds of reciprocal partner"* (p.75). For example, *"if blue spheres are equipped with a power to attract yellow spheres, yellow spheres must, of necessity, possess a reciprocal power, the power to be attracted by blue spheres"* (p.73). A particular attractive event of this kind is a manifestation of reciprocal powers possessed by the blue sphere and the yellow sphere.

*"In general, a power or disposition requires for its manifestation, a suite of reciprocal disposition partners. How a disposition manifests itself depends both on its nature and on the*

*nature of its reciprocal disposition partners. A billiard ball's sphericity is responsible for the ball's rolling, but only on a solid sloping surface situated in a gravitational field"* (Heil, 2012, p.78).

## 3.5. The Supervenience/Exclusion Argument – Kim

This finishes my presentation of three anti-Humean accounts of causation. We now move to the description of Kim's exclusion argument that will also be mentioned in the argument for the Fundamental/Derivative Distinction Thesis. According to this argument, if mental properties are distinct from neural properties, neural properties exclude mental properties from being causes of effects. Therefore, we should identify mental properties with neural properties because we should not reject the causal efficacy of mental properties. In section 3.5.1, I will present this argument and argue that it generalises to every higher-level property. In section 3.5.2, I will argue that two objections against this argument fail.

### 3.5.1 The Exclusion Argument

Kim (2005, p.9) has argued that there are several reasons for wanting to save mental causation. I will mention just two. First, the possibility of human agency requires that our mental states have causal effects in the physical world. In voluntary actions, our mental states must somehow cause our bodies to move in appropriate ways, thereby causing the objects around us to be rearranged. Second, if there is no mental causation, the possibility of psychology as a science capable of formulating law-based explanations of human behaviour is threatened. For this science, mental phenomena must be capable of functioning as indispensable links in causal chains leading to physical behaviour. Psychology invokes mental phenomena in its explanations, and so, it is committed to their causal efficacy. A phenomenon has an explanatory role because its presence or absence makes a causal difference.

Kim (2005) has argued that certain principles make trouble for mental causation if mental properties are not identical to neural properties. These principles can be used to argue for the reducibility of the mental to the neural and against non-reductive physicalism.

To begin with, *"The causal closure of the physical domain*[82]*. If a physical event has a cause at t, then it has a physical cause at t"* (Kim, 2005, p.15). According to this principle, physics is causally self-sufficient: there is no need to go outside of the physical domain to find a cause of a physical event.

If we also adopt the following principle, nonphysical causes of physical events are ruled out. *"Principle of causal exclusion. If an event e has a sufficient cause c at t, no event at t distinct from c can be a cause of e (unless this is a genuine case of causal overdetermination)"* (Kim, 2005, p.17)[8384]. There is also a generalised version of the exclusion principle: *"Principle of determinative/generative exclusion. If the occurrence of an event e, or an instantiation of a property P, is determined/generated by an event c-causally or otherwise-then e's occurrence is not determined/generated by any event wholly distinct from or independent of c-unless this is a genuine case of overdetermination"* (p.17). This principle broadens causation to generation/determination simpliciter. For Kim (2005), *"[c]ausation as generation, or effective production and determination, is in many ways a stronger relation than mere counterfactual dependence, and it is causation in this sense that is fundamentally involved in the problem of mental causation"* (p.18). Supervenience is also understood as generation (e.g., if B supervenes on A, A generates B).

The supervenience argument is a special form of the exclusion argument. The latter concludes that a mental cause is always excluded by a physical cause if the mental cause is distinct from the physical cause. The supervenience argument asks us to suppose that instantiations of mental properties are distinct from instantiations of physical properties. Then, we are asked to suppose that an instantiation of a mental property M causes the instantiation of a property M*[85] (property instantiations are events). The mind supervenes on the body[86], and so, the M*-instance

[82] Papineau (2001, p.27-32) has given two arguments for the truth of this principle (the argument from fundamental forces and the argument from physiology). See also Kim (1989a, p. 43-44) for other reasons to believe this principle.

[83] These two principles have companion principles that are concerned with causal explanations, but I will not mention them because they are not relevant for my argument.

[84] Kim (1989b) has argued for the truth of the causal/explanatory exclusion principle.

[85] Kim sometimes has said that a property causes another property, but he said that this should be understood as short for "An instance of a property causes an instance of a different property".

[86] How exactly we should analyse mind-body supervenience is controversial. Kim (2005, p. 14) has claimed that for the purpose of presenting the exclusion argument, it suffices to understand it as the claim that what happens in our mental life is wholly dependent on, and determined by, what happens with our bodily processes. One more

occurs in virtue of a physical base: the instantiation of the property P*. This means that M* must of necessity be instantiated on this occasion because P* is instantiated on this occasion. According to the exclusion principle, the M*-instance occurred only in virtue of one of these properties-instances. Given that P* is instantiated on this occasion, M* must be instantiated as well on this occasion, independently of what might have preceded this M*-instance. Therefore, the P*-instance seems to exclude the M-instance from being a cause of the M*-instance.

It can be said instead that the M-instance caused the M*-instance *by causing* the P*-instance. But keep in mind that M also has its own physical supervenience base; call it P. P seems to be a cause of P*. P is sufficient for P* since it is sufficient for M and M is sufficient for P*. Now, again we have an effect (P*) and two candidates for being its cause at the same time (P and M). According to the causal exclusion principle, only one of them can be the cause. According to the causal closure principle, M is the one that must be disqualified. Since P* has a cause, it must have a physical cause.

The final picture is the following: P caused P*, M and M* supervene respectively on P and P*. This picture gives away the causal efficacy of our minds. The problem of mental causation arises because of that. *"The problem of mental causation. Causal efficacy of mental properties is inconsistent with the joint acceptance of the following four claims: (i) physical causal closure, (ii) causal exclusion, (iii) mind-body supervenience, and (iv) mental/physical property dualism-the view that mental properties are irreducible to physical properties"* (Kim, 2005, p. 21-22). We should consider which claim we should reject in order to provide an account that allows mental properties to be causally efficacious. (i) and (iii) are or should be among the shared commitments of all physicalists. The exclusion principles are general metaphysical constraints and cannot be successfully challenged. Only (iv) can be rejected, and, then we are led to embrace reductionism.

Kim (2005) has believed that while intentional/cognitive properties can be defined in functional terms and hence are functionally reducible, phenomenal properties are not reducible to physical properties because they are not functional. This is so because qualia inversion is metaphysically possible. I agree with Heil (2003, 2012) that it is a mistake to think that physical

specific, but also more controversial, version is the following: *"Supervenience. Mental properties strongly supervene on physical/biological properties. That is, if any system s instantiates a mental property M at t, there necessarily exists a physical property P such that s instantiates P at t, and necessarily anything instantiating P at any time instantiates M at that time"* (Kim, 2005, p.33).

properties are not intrinsic and qualitative but arguing for this claim is out of the scope of this thesis.

There are four things that I need to clarify about the similarities and differences between my view and Kim's view. Those clarifications will be pertinent to my argument for the Fundamental/Derivative Distinction Thesis.

First, in my view, if the exclusion argument is sound, it can be generalised to all higher-level properties. I think that what we consider true gives us a prima facie reason to believe that all, or at least some, higher-level properties are causally efficacious. We make a lot of causal claims concerning higher-level properties. The only way to save their causal efficacy is to ontologically reduce them to metaphysically independent, physical properties. We may be less tempted to save the causal efficacy of non-mental, higher-level properties because these properties are not about anything personal, such as human agency. However, I think we still should save their causal efficacy to make sense of the causal claims and generalisations of our higher-level sciences. Ontologically irreducible higher-level properties cannot be causally relevant, higher-level properties are causally relevant, and this gives us a reason to believe that higher-level properties are ontologically reducible to fundamental, metaphysically independent, physical properties.

Second, Kim concludes that mental properties are identical to physical properties. But as I have argued earlier in chapters 1 and 2 and I will argue later in this chapter (see section 3.8), the identity theory faces problems. It is better to claim that mental properties are ontologically reduced to physical properties and that sentences about mental properties are made true by physical properties. If mental properties are ontologically reducible to physical properties, then mental properties are causally relevant because they are ontologically reducible to causally relevant properties. The claim that this ontological reducibility holds will be a part of my argument for the Fundamental/Derivative Distinction Thesis.

Third, a mental causal power also cannot be identified to something physical. A sentence about a mental causal power is made true by many different physical causal powers. Someone could be tempted to identify a mental causal power to many physical causal powers. But a causal power cannot be identical to many causal powers. This will be argued later in this chapter (see section 3.8).

This argument holds independently of the metaphysical status of causal powers. Properties may be purely dispositional. They may be powerful qualities. Causal powers may supervene upon qualities. Causal powers and qualities may be aspects of properties. The argument holds anyway. One thing cannot be identified with many.

If properties are purely qualitative and causation happens because of laws of nature that are necessitation relations between universals, then we should not talk about causal powers because properties are not dispositional. Alternatively, we could say that sentences about the causal powers of a property are made true by the things that this property can cause because of certain necessitation relations. Causal powers are not something distinct from qualitative properties causing the existence of other qualitative properties through necessitation relations. In this view, the causal powers of a property are just what this qualitative property can cause with the help of necessitation relations.

Fourth, while Kim has not ontologically reduced neural properties to metaphysically independent, fundamental, physical properties, I do. I think the same causal competition happens between these properties and a way to avoid this competition is to ontologically reduce the neural properties to metaphysically independent, fundamental, physical properties.

Kim (1997b) would respond that neural properties, and other higher-level properties, have different causal powers than microphysical properties, and therefore, they are irreducible. *"Consider the property of having a mass of ten kilograms. It is a property of certain aggregates of molecules, like my desk and filing cabinets, and clearly no proper part of my desk has this property. However, the property is micro-based*[87] *in the following sense: for my desk to have this property is for it to have two parts, a top and a base, such that the first has a mass of six kilograms and the second a mass of four kilograms"* (Kim, 1997b, p.291). A desk possessing a mass of ten kilograms is associated with certain causal powers and no microconstituent or proper part of the desk has this property or the causal powers that are associated with it. Likewise, a neural property has causal powers that are distinct from the causal powers of its constituent physical simples.

[87] *"P is a micro-based property just in case P is the property of having proper parts, $a_1$, $a_2$, ..., $a_n$, such that $P_1(a_1)$, $P_2(a_2)$, .. . $P_n(a_n)$, and $R(a_1,..., a_n)$"* (Kim, 1997b, p.292).

*"Macroproperties have their own causal powers that go beyond the causal powers of their microconstituents. This means that at higher levels in the micro-macro hierarchy we must expect to find properties with new causal powers"* (Kim, 1997b, p. 292)[88].

I do not understand what exactly are the causal powers of higher-level properties over and above the causal powers of the microphysical properties. Consider again the property of having a mass of ten kilograms. Certainly, no microphysical object possesses this property, but it is unclear to me what different causal work this macrophysical property does over and above the causal work of the microphysical properties. It is correct to say that the desk interacts with its environment in a certain way in virtue of being 10kg but the way it interacts is explained by its microproperties and the relations between them. There is nothing else for a macroproperty to do. There is nothing that possesses the irreducible property of being 10kg, but it is unclear why we need something that possesses this property anyway. Given that we have the parts that interact with each other in certain ways, we have all the (causal) phenomena that we describe by talking about something being 10kg. Talking about a desk being 10kg is just an easy way to talk about certain causal interactions at the microphysical level.

### 3.5.2. Opponents of the Exclusion Argument

There are responses to the causal-exclusion argument that try to show that the irreducibly mental is causally relevant by developing accounts of realisation. I will present two such responses and argue that they do not succeed.

To begin with, Gillett (2002, 2010) has suggested a dimensioned account of realisation. According to it, the realisation relation can be between different individuals, properties, powers, or processes. The relation is asymmetric and transitive. It can also be many-one: many realisers realise one realised property. Realisation is a synchronous non-causal determination. Realisation can be defined as follows:

[88] See also Kim (2003, p.167).

*"Property/relation instance(s) F1-Fn realize an instance of a property G, in an individual s, if and only if s has powers that are individuative of an instance of G in virtue of the powers contributed by F1-Fn to s or s's constituent(s), but not vice versa"* Gillett (2002, p.322).

For example, causal powers of higher-level properties are (a) determined by causal powers of physical properties but (b) are different from causal powers of physical properties. Consider a diamond that is hard and can cause scratches in glass (see Gillett, 2002, 2010). This diamond is constituted by carbon atoms that are bonded and related in certain ways. Each carbon atom has the power of causing a contiguous carbon atom to remain in a small range of its present position in certain directions, relative to other carbon atoms, even under high temperatures and forces.

For Gillett (2002, 2010), the hardness of the diamond results from the properties/relations of the individual carbon atoms that constitute the diamond, but the hardness is not identical to these properties/relations. The property of being hard is not identical to any of the particular properties/relations of any individual carbon atom because the property of being hard is instantiated in the diamond whilst particular relations of bonding and alignment are instantiated in some carbon atoms. Moreover, the property of being hard contributes different powers to the diamond from powers contributed by the relations of alignment and bonding to the carbon atoms. For instance, the property of being hard contributes the power to cut glass, while the relations of alignment and bonding contribute the power to cause a contiguous carbon atom to remain in a tight relative spatial range. The property of being hard cannot be identical to any of the particular properties/relations of the carbon atoms because of these differences. Still, the causal powers of the properties/relations of the carbon atoms result in the causal powers of hardness in the diamond, but not vice versa. Therefore, it is plausible that the property of being hard is realised by the relations/properties of the carbon atoms.

I think that the given example of dimensioned realisation does not really show that irreducible, higher-level properties have causal powers that physical properties do not. What we call 'a higher-level causal power' is actually an easy way to talk about the causal interactions of many particles. There is no need to postulate the existence of a higher-level property that has a causal power. I have developed this claim in the previous subsection by examining a different example there given by Kim (1992).

In the example given by Gillett, we do not need to postulate the existence of the irreducible property of being hard. We do not need to claim that the property of being hard is either identical to a physical property or an irreducible higher-level property. I think there is a mistake in thinking that the way that we talk transparently reveals truths about ontology[89]. For example, it is a mistake to say that if something is hard, this object and property must be elements of our ontology. Sentences about diamonds being hard can be true in virtue of carbon atoms and their interactions with each other and other entities. Carbon atoms and their interactions are sufficient to produce the phenomenon we call 'scratching of the glass'. One carbon atom does not produce the scratching, but all the carbon atoms, working together, do. We should not infer from true sentences about a causal power of a higher-level property that there is an irreducible, higher-level property with that causal power. There is no need for a property that does (partially) the scratching. The new conceptual reductive account, which I have developed in chapter 1, gives us a reason to believe this.

If our reason for accepting the dimensioned account of realisation is to give a metaphysical account of the property of being hard, we should re-evaluate this reason. Reductive physicalism can also give such an account, and the resulting view has the advantage of being ontologically simpler. Reductive physicalists can satisfactorily argue that the property of being hard is ontologically reduced to many properties of carbon atoms (or subatomic particles).

Another attempt to save the causal efficacy of the irreducibly mental and explain the metaphysical dependence relation between physical and mental properties was the subset account of realisation suggested by Wilson (2011). According to Wilson (2011), the higher-level states/state types are determinables of and realised by determinate physical states/state types. The realisation relation guarantees the satisfaction of two conditions that illuminate the nature of this relation. The two conditions are the following:

*"Condition on Causal Powers (CCP): Every token power of a realized mental state M on a given occasion is numerically identical with a token power of the (lower-level relational, physically acceptable) base state P realizing M on that occasion"* (Wilson, 2011, p.127).

[89] What follows in this paragraph is inspired by Heil (2003).

*"Subset Condition on Causal Powers (SCCP): The token powers of a realized mental state M on a given occasion are a non-empty proper subset of the token powers of the (lower-level relational, physically acceptable) base state P realizing M on that occasion"* (Wilson, 2011, p.128).

Wilson (2011) has argued that a realising realisation satisfying SCCP avoids overdetermination. She has given an example to show this: consider a mental state M and a physical state P. *"If the relation between M and P satisfies SCCP, then every token power of M is numerically identical to a token power of P, on a given occasion. Hence for any effect produced by both M and P on a given occasion, only one power is manifested. There is only one causing, not two"* (Wilson, 2011, p.128).

I think that Wilson's response to the causal-exclusion argument does not work. To begin with, Wilson needs to explain better the metaphysical status of powers. If mental powers are identical to physical powers, but mental states are not identical to physical states, how can one power belong to two states? One way to think about states is that they contribute powers to their objects. Each state is associated with certain powers. These powers are connected to this state. It is mysterious how a power can be associated with and connected to two states.

Another problem with Wilson's response is that a mental state and a physical state contributing a power to an object seems to be two different contributions even if they contribute the same power. These two contributions show that there is still the problem of overdetermination. More needs to be said about how and why there is just one contribution.

It seems that problematic overdetermination is not avoided. This could be seen more clearly if the relata of causation are events. If as Kim (1984) has said, an event is the exemplification of a property by an object at a time and the relata of causation are events, then there seem to be two causal processes even if there is just one power involved. A mental event can be caused by a physical event *and* a mental event. Problematic overdetermination seems unavoidable if we accept non-reductive physicalism.

This could be seen even if causation is the mutual manifestation of reciprocal powers. If two different properties manifest the same power, these manifestations must be different things because the manifestations originate from different properties. If there are two manifestations, there is

overdetermination. Identifying the powers of mental properties with powers of physical properties does not help with avoiding overdetermination.

Given that there are mental states and that physical states have causal powers, there are, among others, two available metaphysical accounts of mental states: (a) irreducible mental states do not have causal powers, (b) irreducible mental states have powers that are identical to physical powers. We have seen that account (b) faces problems.

Account (a) leads to epiphenomenalism. If the multiple-realisability argument shows that there are irreducible mental states (contra to what I have argued in chapter 2), it could be claimed that mental states are epiphenomenal. But epiphenomenalism faces the problem of explaining away the appearance that mental states are causally efficacious. I think that epiphenomenalism fails to do such an explaining, and therefore, we have a reason to reject the truth of epiphenomenalism.

There seems to be no viable account of realisation, and this leads us to reductive physicalism.

This concludes the discussion of responses to the causal-exclusion argument. I have argued that they are not successful, and this gives us a reason to believe that the causal-exclusion argument is sound. Of course, there are other responses to the causal-exclusion argument, but for the sake of brevity, I am not talking about them. The aforementioned discussion gives us a way that we can respond to some or all of them.

### 3.6. Eleatic Principle/Alexander's Dictum

Another view that I will mention in my argument for the Fundamental/Derivative Distinction Thesis is the Eleatic Principle/Alexander's dictum. If this principle is true, we are not ontologically committed to causally inefficacious entities.

The Eleatic Principle is presented by the Eleatic Stranger in Plato's Sophist. *"I'm saying that a thing really is if it has any capacity at all, either by nature to do something to something else or to have even the smallest thing done to it by even the most trivial thing, even if it only happens once. I'll take it as a definition that <u>those which are</u> amount to nothing other than <u>capacity</u>"* (Plato, 1997, 247e, underlying added).

If we admit that mental events cannot be causes, then the existence of mental events and properties seems dubious. Kim (1993/2003) has mentioned "Alexander's dictum" (inspired by Samuel Alexander's view): To be real is to have causal powers. According to it, we do not have any reason to accept in our ontology something which does nothing, serves nothing, and depends on the work of its inferiors. Contrarily, these are reasons to deny its existence. A more specific version of this dictum mentions irreducible entities: *"to be real, new, and irreducible, therefore, must be to have new, irreducible causal powers"* (Kim, 1993/2003, p.204).

I take this principle as talking about *anti-Humean* causal powers. I assume that given the truth of an anti-Humean account of causation, there are no irreducible entities that are involved only in Humean causation. To be real, new, and irreducible is to be involved in anti-Humean causation. For example, if the universals theory of laws of nature is true, every real, new, and irreducible object is or can be involved in a causal process because its properties can necessitate other properties. Also, every real, new, and irreducible property is associated with at least one necessitation relation between universals.

We may need to use the dependence concept of causation for certain pragmatic and moral reasons (e.g., to blame someone) but it does not pick out entities that cause things only in this sense. I think that is the case because we do not need additional entities to explain why we use the dependence concept of causation and why certain counterfactual causal claims are true.

If both concepts of causation are needed, the productive account seems to be the fundamental one. The productive concept picks out something real out there: the transference of energy from the cause to the effect. However, the counterfactual account of causation provides causal claims that are made true by the presence or absence of productive causation. Suppose that *c* caused *e*. The counterfactual "$\neg c \ \Box\!\!\rightarrow \neg e$" is true because if *c* had not happened, *e* would have not been produced. Suppose that it is the case that $\neg d$ and $\neg f$. The counterfactual "$d \ \Box\!\!\rightarrow f$" is true because if *d* had occurred, it would have produced *f*. These productive counterfactuals can be true partially because of certain necessitation relations between universals (Armstrong (2004) considered his view compatible with productive causation).

## 3.7. The Fundamental/Derivative Distinction Thesis Argument

Building on the argument for the Addition/No-Addition Distinction Thesis, we can formulate an argument for the Fundamental/Derivative Distinction Thesis. My goal is to suggest an argument that can also be friendly to reductive physicalism, truthmaker theory, metaphysical foundationalism and can be used to argue against the identity theory. I will use it to argue that there is a metaphysically independent, fundamental, physical level and higher-level entities are derivative. This will lead us to the conclusion that the Fundamental/Derivative Distinction Thesis is true.

In this strong argument, metaphysical ((2)-(4) and (6)-(11)), and metametaphysical ((1), (5), (12), and (13)) positions will lead us to a metametaphysical position. I think this is unproblematic because I do not presuppose the concluding metametaphysical position during the development of the argument. Instead, the truth of certain metaphysical and metametaphysical views and arguments motivates a different metametaphysical view. According to this metametaphysical view, metaphysics should partially aim to discover which entities exist fundamentally and give an account of why certain entities exist derivatively. An example of the first task is arguing whether the whole universe or elementary particles exist fundamentally. This is partially a scientific issue, but philosophers can also contribute to the discussion. An example of the second task is giving the truth-conditions of specific sentences about higher-level objects that exist derivatively (see chapter 4).

I have to admit that the following argument does not rely on widely accepted premises. It includes very controversial premises and the conclusions of controversial arguments. For the sake of brevity, I did not provide arguments for these views, but the cited works provide such arguments. A detailed argument for each premise would need at least its own paper.

Another way to think about the argument for the Fundamental/Derivative Distinction Thesis is the following: a way to start doing metaphysics is by accepting the 13 premises below and following the conclusion. This argument provides a way to start thinking about issues in metaphysics, and it may be defeated by further philosophical inquiry. It is puzzling how one should start doing metaphysics in order to decide which is the metaphysical theory that describes the world most accurately. The argument below suggests one way to start doing metaphysics that relies on premises that influence crucially our metaphysical theories.

Many philosophers talk about carving reality at its joints. They think that finding the fundamental structure of reality is a major aim of metaphysics. But they do not always provide an argument for why we should believe that reality has a fundamental structure. For example, they do not say why the mental/physical distinction is an ontological distinction and not a merely conceptual distinction. I started writing this chapter by asking: what views can lead us to the conclusion that the Fundamental/Derivative Distinction Thesis is true? This chapter can be understood as one way to come to that conclusion.

The argument can be useful even for somebody that has different metametaphysical convictions. It can help them to realise that they have to reject one of its premises in order to continue their metametaphysical endeavours. Someone that believes that disputes in metaphysics are merely verbal or that the mental/physical distinction is a mere conceptual distinction must say which of my premises is wrong and why. This will help them to understand that the truth of their view depends on the falsity of another view.

With these preliminary thoughts out of the way, let's examine the argument for the Fundamental/Derivative Distinction Thesis:

1. Some existence debates in metaphysics are trivial (see Heil, 2003, 2012; Cameron, 2008a, 2008b; Schaffer, 2009).
2. There is a metaphysically independent, fundamental, physical level (see Schaffer, 2010; Trogdon, 2018; Cameron, 2008c).
3. The Exclusion Argument (Kim, 2005, 2007) is sound. If mental properties are causally efficacious, they are ontologically reducible to metaphysically independent, fundamental, physical properties.
4. The exclusion argument can be generalised: all higher-level properties, which are causally efficacious, are ontologically reducible to metaphysically independent, fundamental, physical properties. (1-3).
5. The Eleatic Principle/Alexander's Dictum (Armstrong, 1978a, 1978b; Kim, 1993/2003) is true.
6. All higher-level entities are ontologically reducible to metaphysically independent, fundamental, physical entities. (4,5).
7. The only metaphysical accounts compatible with ontological reducibility are the identity theory and fundamental/derivative views.

8. An anti-Humean account of causation or laws of nature is true: the Universals Theory of Laws of Nature (Armstrong, 1983) is true or the Productive Account of Causation (Fair, 1979; Dowe, 2000) is true or the Dispositionalist Account of Causation (Heil, 2003, 2012) is true.
9. If an anti-Humean account of causation or laws of nature is true, the identity theory is false.
10. The identity theory is false. (8,9).
11. Ontological reducibility is better explained by fundamental/derivative views. (7,10).
12. If every entity can be given a true metaphysical account by using the fundamental/derivative distinction, then the Fundamental/Derivative Distinction Thesis is true.
13. Every entity can be given a true metaphysical account by using the fundamental/derivative distinction. (6, 11).
14. Therefore, the Fundamental/Derivative Distinction Thesis is true. (12, 13).

This argument depends on the truth of more views than the earlier, weaker argument. The argument for the Addition/No-Addition Distinction Thesis was only relying on the truth of the exclusion argument and premises (1) and (5). Furthermore, when we were discussing the exclusion argument, we were not presupposing the truth of physicalism and the soundness of the causal drainage argument. Moreover, the Eleatic Principle was not understood in anti-Humean terms. All the other premises are added to move to a more specific view.

You might have noticed that I rely on the truth of many views that I do not defend here. I cite philosophers that developed these views and gave arguments for them. You might have also noticed that some premises and what we can conclude from them were defended by others. I do not think that noticing these things reveals a problem. I think there is merit in putting forward a more explicit argument for the Fundamental/Derivative Distinction Thesis (or for some of the premises and what follows from them) than the cited literature. It makes it clearer how we are led to this thesis.

Let's talk about all these premises in turn. Premise (1) was already discussed in section 3.2. From it, we can infer, among other things, that there are physical, chemical, biological, neurological, and mental entities.

Concerning premise (2), it needs to be clarified that it does not lead to circular reasoning. I am just saying that some fundamental entities do not metaphysically depend on other fundamental entities. This is not the same as the conclusion that claims that some entities are fundamental and

other entities are derivative. It is compatible with premise (2) that there are metaphysically independent, fundamental entities and the metaphysically dependent entities are also an addition of being.

An argument for this premise was provided by Schaffer (2010) and Trogdon (2018) and a different one was provided by Cameron (2008c). While Schaffer and Trogdon have argued that postulating the existence of an ungrounded level is the only way to avoid a vicious infinite regress, Cameron has argued that metaphysical foundationalism is methodologically preferable because it provides unified explanations. I will examine these arguments in detail in chapter 6.

It could be argued that these arguments show that there is a metaphysically independent level, but they do not show that this level is physical. We can avoid a vicious infinite regress even if the metaphysically independent level is idealist. Idealist foundationalism can also provide us with unified explanations (every dependent entity is explained by a few idealist entities).

So, what is my reason for believing that the metaphysically independent level is physical? I am attracted to the simplicity of physicalism, and I intend to endorse it as long as there are no good reasons to reject it. Of course, this will not be sufficient to persuade an idealist to reject their view. Here I just state an assumption that is important for my argument. The argument could be developed with the weaker premise "There is a metaphysically independent, fundamental level". But I want the conclusion to be that metaphysically independent, physical entities are fundamental and everything else that exists is derivative because this is closer to my metaphysical beliefs. Moreover, presupposing that the metaphysically independent, fundamental level is physical provides us with an illuminating example when I develop the argument. If you think that this makes my argument unattractive, be patient until the end of section 3.9. There, I will briefly suggest a weaker argument that is inspired by this strong argument and does not presuppose the truth of physicalism.

Let's consider the first 4 premises together:

1. Some existence debates in metaphysics are trivial (see Heil, 2003, 2012; Cameron, 2008a, 2008b; Schaffer, 2009).
2. There is a metaphysically independent, fundamental, physical level (see Schaffer, 2010; Trogdon, 2018; Cameron, 2008c).

3. The Exclusion Argument (Kim, 2005, 2007) is sound. If mental properties are causally efficacious, they are ontologically reducible to metaphysically independent, fundamental, physical properties.
4. The exclusion argument can be generalised: all higher-level properties, which are causally efficacious, are ontologically reducible to metaphysically independent, fundamental, physical properties. (1-3).

Premises (3) and (4) were discussed in section 3.5. I think that all higher-level properties, which are causally efficacious, are in causal competition with metaphysically independent, fundamental, physical properties, and this gives us a reason to ontologically reduce all causally efficacious, higher-level properties to metaphysically independent, fundamental, physical properties. We can infer premise (4) from premises (1) - (3). Premise (1) ensures that there are higher-level properties to reduce to metaphysically independent, fundamental, physical properties. Premise (2) ensures that the causal drainage stops at some point and as result, it is not the case that causal powers are always deferred, never achieved. From premise (3), we get the soundness of the exclusion argument and a claim about the ontological reducibility of causally efficacious, mental properties. Premise (4) is the claim that the exclusion argument generalises, and this results in broad ontological reducibility.

Note that according to premise (4), all higher-level properties, which are causally efficacious, are ontologically reducible to metaphysically independent, fundamental, physical properties. I take ontological reducibility to be compatible with either the identity theory or fundamental/derivative views. These views could be considered as the only ways to explain better the relation between the higher-level properties and the metaphysically independent, fundamental, physical properties. These views accept that only metaphysically independent, fundamental, physical properties are additions to being. Premise (4) is neutral between them, and I take the conclusion of my argument as a reason to prefer a fundamental/derivative view.

Keep in mind, that premise (4) ontologically reduced only causally efficacious, higher-level properties to metaphysically independent, physical properties. We were not talking about causally inefficacious, higher-level properties and higher-level objects. But following the Eleatic Principle (premise 5), there is no good reason to assume the existence of causally inefficacious

higher-level properties and higher-level objects that are not involved in causal relations. The same can be said for higher-level states of affairs, events, or facts.

Premises (1) - (4) lead us to the conclusion that there is something special about the metaphysically independent, physical level. All higher-level causal relations and causally efficacious entities are ontologically reducible to the metaphysically independent, physical level. By adding premise 5 ('The Eleatic Principle/Alexander's Dictum is true'), we are led to the conclusion that there are no causally idle entities. So, all higher-level entities are ontologically reducible to metaphysically independent, fundamental, physical entities (premise 6).

An alternative fundamental/derivative distinction would be between the causally efficacious (the fundamental) and the causally inefficacious (the derivative). In this view, the derivative is an addition of being and an epiphenomenon. But I think the Eleatic Principle gives us a good reason to deny the existence of causally inefficacious entities.

From (6), we can infer that there are entities that are an addition to being and there are other entities that are no addition to being. The entities that are no addition to being are ontologically reducible to the entities that are an addition to being. The question arises whether we can explain further the relation between those entities.

This can be done only by an identity theory or a fundamental/derivative view (premise 7: 'The only metaphysical accounts compatible with ontological reducibility are the identity theory and fundamental/derivative views'). I think so because I cannot think of a different metaphysical account that is compatible with ontological reducibility. Both the identity theory and fundamental/derivative views are compatible with the truth of (1) – (6). But as we will see below, Leibniz's principle of the indiscernibility of identicals shows us that one thing cannot be identical with many, if an anti-Humean account of causation or laws of nature is true. In what follows, I will explain this claim by providing an argument for premises (9) and (10).

## 3.8. From Ontological Reducibility to Fundamental/Derivative Views

The following argument can be used to argue against the one-many identity theory. It supports premises 9 ('If an anti-Humean account of causation or laws of nature is true, the identity theory is false') and 10 ('The identity theory is false').

i. If M=P (where M is a mental property and P are many microphysical properties[90]), then M and P are involved in the same causal relations.
ii. M and P are not involved in the same causal relations.
iii. Therefore, M is not identical to P.

I argue against M=P. However, an identity theorist could react by saying that a mental property is identical to a neurological property but not to microphysical properties. I just argue against the wrong identity theory. Still, I think that the exclusion argument forces us to ontologically reduce a mental property to many microphysical properties (see section 3.5). Causal powers drain away to the microphysical level, and so, we should ontologically reduce a mental property to microphysical properties. If somebody wants to explain this ontological reducibility in terms of identity relations, then they are forced to identify a mental property with many microphysical properties.

Premise (i) seems to follow from Leibniz's principle of the indiscernibility of identicals[91]. If M and P are identical, then M causes *e*[92] iff P causes *e*. One thing cannot both cause and not cause something. Furthermore, if M and P are identical, then M causes *e* in way W iff P causes *e* in way W. The mental and microphysical vocabulary should not identify different causal processes.

Concerning premise (ii), I think it is true because an anti-Humean account of causation or laws of nature is true (premise 8: 'An anti-Humean account of causation or laws of nature is true:

[90] What if the whole universe or quantum fields are the only fundamental physical entities? Even worse for the identity theory! There is not any fundamental entity to identify with M. A quantum field and the whole universe do not share the same location with M. A fundamental/derivative view looks attractive without even the need to develop the above argument against the identity theory. I consider microphysicalism as one of the few kinds of reductive physicalism that can provide fundamental entities to be identical with M. If space-time points are the only fundamental entities, M could be identified with some of them, but a similar argument against the one-many identity theory can be stated.

[91] I assume here that the principle of indiscernibility of identicals is an essential feature of identity relations. See though Bricker (2016) for a different view. See also Bohn (2014), Cotnoir (2013b), and Wallace (2011a, 2011b) for views that one-many identity is compatible with the principle of indiscernibility of identicals. I will not respond to these views here for the sake of brevity, but I think that those views cannot deal with my objection.

[92] More precisely, an object possessing M (an event) causes *e* (in what follows, I will not refer to objects and events for the sake of brevity).

the Universals Theory of Laws of Nature is true or the Productive Account of Causation is true or the Dispositionalist Account of Causation is true'; anti-Humean accounts of causation and laws of nature were described in section 3.4). If an anti-Humean account of causation or laws of nature is true, M and P enter into different causal relations. *One* thing causing one event is different from *many* things causing one event. Different necessitation relations between universals, or manifestations of powers, or transferences of energy seem to be involved, when we consider *a* mental property and when we consider *many* microphysical properties. If M and P do not cause things in the same way, there is a difference between M and P. If there is a difference between M and P, they cannot be identical. Therefore, M and P are not identical (conclusion).

Non-identity is compatible with ontological reducibility (see section 1.6). M not being identical to P is still compatible with M being ontologically reducible to P. Sentences about M may be made true by P, even though M is not identical to P. Multi-descriptional physicalism looks very attractive.

An example may help to show why one-many identities are implausible. Suppose that my desire to drink water causes me to buy a bottle of water from the kiosk. There seems to be just one necessitation relation between my desire to drink water and my buying a bottle of water from the kiosk. But, when we consider the relevant properties of simples that are supposed to be identical with my desire to drink water, we discover many necessitation relations: each simple separately and partially causes my buying a bottle of water. There seem to be different causal relations when we consider my desire and when we consider the properties of simples that are assumed to be identical with my desire. So, the supposition that my desire is identical to some properties of simples is inconsistent with the principle of the indiscernibility of identicals. So, the supposition fails. It was wrong to assume that my desire is identical to many properties of simples.

One way to respond to my argument against the one-many identity theory is to claim that it is unclear why we need to say there is one necessitation relation between the desire and the action. Why not say the desire (just like the simples it is identical with) is linked to the action only by the many necessitation relations? This seems compatible with an anti-Humean account of causation, which needn't require a one-one correspondence between causes and causal relations.

I find this move problematic. Each simple having certain properties and partially causing an event is different from a whole having certain properties and causing an event through various necessitation relations.

This can be seen more clearly when we consider the case of a rock breaking a window. Imagine that somebody throws a rock towards a window and breaks the window because of that. The rock is made up of simples. Each of these simples partially caused the breaking of the window. Each simple having certain properties was connected to the breaking of the window through certain necessitation relations. It is unclear how the rock as a whole can be associated with the same necessitation relations. It does not occupy the same space as each simple taken individually. If the rock's properties are causing the breaking of the window through many necessitation relations, these necessitation relations are different from the necessitation relations that are connected with the properties of the simples that make the rock.

Another response to my argument can be to accept that M is involved in one necessitation relation and the microphysical properties are involved in many necessitation relations but do not accept that this shows that M is not identical to P. Instead, it can be argued that one necessitation relation is identical to many necessitation relations. Even granting that there is one necessitation relation between the desire and the action, and many necessitation relations between the microphysical properties and the action, why should we think these are different causal relations? One-many identity could hold here as it holds between the desire itself and the microphysical properties. The one necessitation, that is, is identical to the many necessitations. I do not object to one-many identity in general, so it is not clear why this move should not be allowed to the identity theorist.

I do not find this response successful. Causing an event through one necessitation relation and causing the same event through many necessitation relations are different things. It is one thing for a whole as a whole to cause something and it is a different thing for its simples, taken individually, through many small interactions to cause the same thing.

Going back to a previous example, each simple partially causing the breaking of the window occupies different space from the rock. The relata of the many necessitation relations and the relata of the one necessitation relation occupy different spaces. If many necessitation relations are identical to one necessitation relation, then the relata of the many necessitation relations occupy

the same space as the relata of the one necessitation relation (this is inspired by Leibniz's principle of the indiscernibility of identicals). The consequent is false in the case of the rock and its simples. So, the antecedent is false in this case.

Another response to my argument against the identity theory could be to identify *a* mental property with *a* neurological property. So, in both cases (the mental property causing an action and the neurological property causing an action), there is just one necessitation relation between universals and the aforementioned problem does not arise. But remember that in section 3.5, I have argued that we should believe that there are no irreducible neurological properties because we do not have a good reason to think that irreducible neurological properties would have irreducible causal powers[93]. So, a mental property cannot be identified with an irreducible neurological property. It may be argued that it can be identified with many metaphysically independent, physical properties, but we have seen that this view faces problems.

My claim is not simply that one thing cannot be identified with many. Instead, I claim that one thing cannot be identified with many *given an anti-Humean account of causation*. Given an anti-Humean account of causation, a fundamental/derivative view seems more plausible.

The aforementioned difference between M and P is a substantial difference, a difference in the world; it is not merely conceptual. By using the mental and the physical vocabulary, we pick out different necessitation relations or manifestations of powers or transferences of energy that are out there.

But if a Humean account of causation is true, it can be argued that the difference is merely conceptual. One desire and many microphysical properties are just different ways to describe the same thing(s). The difference between the number of causal relations is also conceptual. The different number of causal relations does not pick out real, different entities out there. That is why I believe the truth of an anti-Humean account of causation is crucial for the soundness of my argument against the one-many identity theory. My argument can show that we pick real, different

[93] A worry may be that if metaphysical infinitism is true, causal powers drain away and nothing has causal powers (see Block, 2003). As a response, it could be argued that metaphysical infinitism is impossible (see Schaffer, 2010; Trogdon, 2018).

entities that are out there by using different vocabularies, only if an anti-Humean account of causation is true.

To sum up, the exclusion argument, suggested by Kim, concluded that mental properties are identical to physical properties. I take it that alternatively, we can conclude that mental properties are ontologically reducible to physical properties and this conclusion does not imply identity (see chapter 1). The other premises are added to conclude something more general: all higher-level entities are ontologically reducible to metaphysically independent, fundamental, physical entities and this motivates a certain metametaphysical view, the Fundamental/Derivative Distinction Thesis. This thesis motivates the endorsement of multi-descriptional physicalism, even though it does not entail its truth. Another kind of reductive physicalism may describe reality better. While later versions of Kim's exclusion argument relied on the truth of the productive account of causation, earlier versions did not. I added the truth of an anti-Humean account of causation as a separate premise because it plays a big role in arguing against the identity theory.

According to premise (6), higher-level entities are ontologically reducible to metaphysically independent, fundamental, physical entities. Ontological reducibility is compatible with both the identity theory and fundamental/derivative views (premise 7). Premises (8) and (9) entail that the identity theory is false. Fundamental/derivative views remain as the only plausible views, and as a result, ontological reducibility is better explained by fundamental/derivative views (premise 11).

This takes us to the end of the argument, premises (12) and (13) and the conclusion (14):

12. If every entity can be given a true metaphysical account by using the fundamental/derivative distinction, then the Fundamental/Derivative Distinction Thesis is true.
13. Every entity can be given a true metaphysical account by using the fundamental/derivative distinction. (6, 11).
14. Therefore, the Fundamental/Derivative Distinction Thesis is true. (12, 13).

Premise (12) depicts a more general picture of metaphysics: if we can give a true metaphysical account of every entity by using the fundamental/derivative distinction, then the Fundamental/Derivative Distinction Thesis is true. The aims of metaphysics should partially be to discover the fundamental entities and explain why they suffice for the existence of the derivative

entities. Given that we gave a true account of every entity by using the fundamental/derivative distinction, a major metaphysical task is completed. So, the Fundamental/Derivative Distinction Thesis is a true normative thesis about metaphysics.

Why should we believe premise (13)? According to premise (6), all higher-level entities are ontologically reducible to metaphysically independent, fundamental, physical entities. Premise (11) claims that ontological reducibility is better explained by fundamental/derivative views. Therefore, higher-level entities are derivative. This shows that every entity can be given a true metaphysical account in terms of the fundamental/derivative distinction (premise 13). The truth of premises (12) and (13) leads us to the conclusion: the Fundamental/Derivative Distinction Thesis is true.

## 3.9. The Fundamental/Derivative Distinction Thesis and its Consequences

In this section, I will describe consequences and implications that follow from believing that the Fundamental/Derivative Distinction Thesis is true.

To begin with, it should be emphasised here that derivative existence is not a secondary or inferior mode of existence. Derivative existence is not something distinct from fundamental existence. The vocabularies we use to talk about derivative entities refer to real, mind-independent entities that are out there. They refer to fundamental entities. They pick out objective, mind-independent, less-than-perfect fundamental similarities. These are reasons to not understand the Fundamental/Derivative Distinction Thesis as eliminativism about the derivative. The vocabulary about the derivative is not just an easy way to communicate with each other. It refers to the fundamental world out there. It is true to say that a derivative entity exists because sentences about it are made true by existing fundamental entities.

Moreover, as I have said in section 3.2, my argument is developed by using the deflationary conception of the derivative. But someone could prefer the inflationary conception of the derivative because they were persuaded by the multiple-realisability argument (see Putnam (1967/1975), LePore & Loewer (1987), and Fodor (1974, 1989)) to believe that higher-level entities are ontologically irreducible to physical entities. If I had been using the inflationary conception, some premises would have been developed differently and others would have been

removed. Concerning the exclusion argument, it would have been argued that 2 entities can avoid causal competition if one of them inherits its causal powers from the other one. The Eleatic Principle would have been developed in a way that allows the existence of derivative entities that inherit their being from fundamental entities. I would have also claimed that all higher-level entities *metaphysically depend* on metaphysically independent, fundamental, physical entities. That metaphysical dependence is of a sort that ensures that those higher-level entities are derivative. Talk about ontological reducibility would have been replaced by talk about metaphysical dependence, and as a result, there would have not been the need to decide between the identity theory and fundamental/derivative views. Metaphysical dependence of the sort that entails that metaphysically dependent entities are derivative would have been sufficient to entail the truth of the Fundamental/Derivative Distinction Thesis. So, the argument would have been shorter[94]. From premise (6*) ("All higher-level entities metaphysically depend on metaphysically independent, fundamental, physical entities"), we can go directly to premises (12)-(14).

Additionally, I have mentioned in section 3.2 that I distinguish between existence and ontological commitment, but I have claimed that a modified argument can be formulated if we do not like this distinction. I have claimed that X can exist, even if we are not ontologically committed to X. It may be true to say that X exists because sentences about it are made true by various simples. If someone worries about using 'exist' this way and prefers to say that X exists iff we are ontologically committed to X, a modified argument for the Fundamental/Derivative Distinction Thesis could be more attractive to them. In premise 1, instead of saying that some existence debates in metaphysics are trivial, we could say that it is trivial that some sentences are true. In premise 6, we would not want to say that 'all higher-level entities are ontologically reducible to metaphysically independent, fundamental, physical entities' because higher-level entities do not exist (ontological reducibility implies that higher-level entities exist). Instead, we would say that sentences about higher-level entities are made true by metaphysically independent, fundamental, physical entities. Because of that, we would not need to decide between fundamental/derivative views and the identity theory. From the modified premise 6, we can go directly to premise 12. The conclusion of the argument could be that while only fundamental entities exist, there are true

[94] Except if there was a defence of the claim that inheritance accounts ensure that there is no causal competition between a metaphysically independent entity and an entity that inherits its causal powers from the former. It is not sure whether this will make the argument longer.

sentences about derivative entities. Derivative entities are entities that do not exist, but sentences about them are made true by fundamental entities. Metaphysics should partially be about discovering the fundamental entities and explaining why they suffice for the truth of sentences about derivative entities.

Furthermore, the conclusion of this argument should not be considered as the last word on the matter. New arguments may arise that make us doubt its truth. There may be good arguments to believe that premise (1) is false (existence monism: only the whole universe exists (Horgan & Potrč, 2000); existence pluralism: only the simples exist (Rosen & Dorr, 2002; Sider, 2013); organicist: only simples and organisms exist (van Inwagen, 1990, 2002)). I presuppose here that these views fail.

I think that only metaphysically independent, physical entities are fundamental, but some arguments may persuade us that more entities are fundamental. For example, there may be good reasons to conceive phenomenal properties as fundamental entities (see Chalmers, 1996). Or there may be good reasons to reject the existence of some derivative entities. For example, there may be a good reason to reject the existence of intentional properties/propositional attitudes (see Churchland, 1981, 2007).

The Fundamental/Derivative Distinction Thesis has both metaphysical and metametaphysical implications. The Fundamental/Derivative Thesis encourages us to discover which entities are fundamental and explain why other entities are derivative. For instance, we should decide which are the fundamental physical entities. Are the elementary particles fundamental? Are the quantum fields fundamental? Is there only one fundamental entity, the whole cosmos? Does empirical enquiry support monism (Schaffer, 2007, 2010) or pluralism (Miller, 2014)? Those questions are partially empirical, but philosophy can also help with conceptual issues or with philosophical arguments that motivate one of the plausible physical theories. We could also go one step back and discuss whether physicalist or idealist entities are fundamental. Furthermore, we should explain why derivative entities exist. Why are the fundamental entities sufficient for the existence of derivative entities? Why do the derivative entities exist even though they are no addition to being? What is the relation between the fundamental and the derivative? For example, which metaphysical theory explains better why derivative, higher-level objects exist? The truthmaker theory or the paraphrase strategy (see chapter 4)?

A different metametaphysical view was suggested by Schaffer (2009). Schaffer has argued that the purpose of metaphysics is to find out what grounds what (i.e., to find out what is grounded and what is ungrounded)[95]. Existential debates in metaphysics are trivial, but grounding debates are not. For example, in *"the debate over universals, both the realist and nominalist accept the existence of general properties. The dispute is over whether properties are fundamental, or whether they are derivative"* (Schaffer, 2009, p. 362).

However, Turner (2016) has noticed that Schaffer's (2009) metametaphysical view motivates us to ignore certain eliminative, metaphysical views, and this is problematic. Turner (2016, p.390-391) mentioned Melia's (2015) austere version of nominalism as a view that is ignored. Austere nominalism is a view that denies the existence of properties. Melia has rejected the existence of classes, universals, tropes, and states of affairs. For Melia (2015, p.175), *"the world contains concrete particulars and only concrete particulars"*. For Turner (2016), Schaffer seems to cut Melia out of the dialogue. This is problematic because austere nominalism is a viable position that some feel inclined to defend. *"We cannot make theories we dislike (and the arguments for them) go away by simply choosing to ignore them. If grounding tempts us to do this, then grounding is a devious little devil indeed"* (Turner, 2016, p.391).

My view avoids this problem. I take premise (1) of my argument as a starting point. Moorean considerations lead us to believe that many entities exist, but other philosophical considerations may refute Moorean beliefs. I do not take Moorean beliefs to be unfalsifiable (so it may be a bit misleading to call them 'Moorean' because some people take Moorean beliefs to be unfalsifiable). I take them to give us prima facie reasons to think that entities, such as properties, exist.

Schaffer could change his view and endorse my view concerning Moorean beliefs. Still, as long as he does not do this, my approach is advantageous.

The Fundamental/Derivative Distinction Thesis could still be useful, even if few entities cannot be given a true metaphysical account by using the fundamental/derivative distinction. For

[95] Remember though that Schaffer's grounding theory is a fundamental/derivative view. Still, my metametaphysical thesis (the Fundamental/Derivative Distinction Thesis) does not entail the truth of Schaffer's grounding theory. An alternative, and my preferrable, fundamental/derivative view is the truthmaker theory. A physicalist development of the truthmaker theory is multi-descriptional physicalism.

example, we may have to be eliminativists about properties, but if the best metaphysical account of every other entity is given by using the fundamental/derivative distinction, then the Fundamental/Derivative Distinction Thesis is a good way to think about metaphysics. On the other hand, if many different kinds of entities cannot be truly explained through the fundamental/derivative distinction, then we have a good reason to reject the Fundamental/Derivative Distinction Thesis.

A weaker argument for the Fundamental/Derivative Distinction Thesis could have slightly different premises and leave more metaphysical questions open because of that. It would be weaker because it does not refer to anything physical. That argument's premise 2 could be 'There is a metaphysically independent, fundamental level' and premise 4 could be changed to include 'all higher-level properties, which are causally efficacious, are ontologically reducible to metaphysically independent, fundamental properties'. Premise 6 could be changed to 'All higher-level entities are ontologically reducible to metaphysically independent, fundamental entities'. Then, we could ask whether the metaphysically independent, fundamental level is physical, idealist, or something else. I suggested the stronger argument because I wanted to motivate multi-descriptional physicalism, but the weaker argument could be used to merely support the truth of the Fundamental/Derivative Distinction Thesis. The weaker argument would be neutral about the truth of physicalism. Alternatively, a modified argument could be used to advocate panpsychism or idealism.

## 3.10. Conclusion

I have argued that the Fundamental/Derivative Distinction Thesis is a good way to understand what metaphysics should partially be about. According to this view, there are fundamental entities and they are elements of our ontology, and there are derivative entities but they are not additional elements in our ontology. The aim of metaphysics should partially be to find out the fundamental entities and why they suffice for the existence of derivative entities. My argument is controversial because it relies on controversial views in metaphysics and metametaphysics, but at least, it shows a way to start thinking about these issues.

I have used this argument to show that the fundamental entities are metaphysically independent, physical entities. But a weaker conclusion could be that there is a fundamental level and we need an additional argument to decide what is the nature of this fundamental level. Inspired by the argument for the Fundamental/Derivative Distinction Thesis, a weaker argument was provided. It was argued that there are entities that are an addition to being, and there are other entities that are no addition to being. This argument may be more attractive to people that disagree with some of the premises of my argument for the Fundamental/Derivative Distinction Thesis.

## 4. Sentences Apparently About Composite Objects: True Even Without Composite Objects

### 4.1. Introduction

In the following chapters, I will engage with different arguments that can be used to defend the claim that the Fundamental/Derivative Distinction Thesis (see chapter 3) is false. I will argue that these arguments fail, and as a result, some obstacles to accepting the above thesis are removed.

One argument against the Fundamental/Derivative Distinction Thesis may be that despite proposing a new way to conceptually reduce higher-level terms and predicates to physical terms and predicates, I did not say a lot about the truth-conditions of specific sentences about complex objects[96]. It may be considered difficult for a one-level-of-being theorist to accommodate specific sentences about complex objects and explain why exactly they are true.

Still, following van Inwagen (1990), we may want to save the truth of ordinary sentences (i.e., sentences expressed in the ordinary business of life, in non-metaphysical contexts) about the existence of chairs, tables, etc. In metaphysical contexts, it is true to say that there are no composite objects[97]. However, we may want to argue that this does not undermine the truth of ordinary sentences about the existence of complex objects. A reason to save the truth of those ordinary sentences is that they command Moorean certainty: any argument against their truth is less plausible than their truth.

So, I propose the following desideratum for compositional nihilists:

DesideratumESCO (Explain Sentences apparently about Composite Objects): A compositional nihilist should explain why each true ordinary sentence apparently about composite objects is true, even though there are no composite objects.

[96] I will use 'complex objects' to talk about higher levels of complexity (or organisation). This is neutral on whether different levels of complexity correspond to different levels of being (see Heil, 2003). For example, a table is more complex than an elementary particle, but it does not follow that the table is something over and above the elementary particles that make it. It does not follow that we have the elementary particles *and* the table.

[97] Following van Inwagen (1990), I will use 'composite objects' in a metaphysically robust sense. A composite object is an addition of being, something more than a collection of particles. *"We shall use the expression the xs compose y as an abbreviation for the xs are all parts of y and no two of the xs overlap and every part of y overlaps at least one of the xs"* (van Inwagen, 1990, p.28-29).

We may have independent reasons to be compositional nihilists (e.g., Heil, 2003: causal-exclusion argument, Cameron, 2008a: explanation of necessary connections, Cameron, 2010b, 2010c: the methodological principle of simplicity)[98], but these reasons are undermined if we cannot fulfil DesideratumESCO (this disadvantage of our nihilist view may lead us to reconsider our reasons to be nihilists).

Van Inwagen (1990) has suggested a paraphrase strategy to show why those sentences are true (section 4.2). I agree with Uzquiano (2004) that this strategy fails because it cannot paraphrase all those sentences (section 4.3). So, it cannot fulfil DesideratumESCO.

I will argue that Cameron's truthmaker theory is also not sufficient to fulfil DesideratumESCO (sections 4.4 and 4.5). Cameron can merely say that those sentences are made true by simples. This will not persuade someone that wants specific truth-conditions of particular sentences. The nihilist may be asked to explain under what conditions particular sentences apparently about composite objects are made true by simples, and it seems Cameron does not have the resources to give such an explanation.

I will propose an alternative truthmaker theory and argue that we can show why the sentences that cannot be paraphrased are true by combining resources from both van Inwagen's (1990) paraphrase strategy and Cameron's (2008a) truthmaker theory (sections 4.6-4.9). I will argue that we can fulfil DesideratumESCO by describing the truth-conditions of specific sentences about complex objects without referring to these entities as things that exist fundamentally. So, the compositional nihilist has a good reason to accept my truthmaker theory. In section 4.10, I will consider other paraphrase strategies and argue that they face problems. In section 4.11, I will argue that my truthmaker theory can also give nihilist-friendly truth-conditions of mereological talk.

## 4.2. Paraphrase Strategy - Van Inwagen

[98] Van Inwagen (1990) has not believed that there are inanimate composite objects because (a) sentences apparently about them can be paraphrased into sentences about arrangements of simples, (b) if we want to state necessary and sufficient conditions for the occurrence of composition, more or fewer composite objects are generated than someone would be comfortable with, and (c) if there are no inanimate composite objects, there are no problems concerning spatially coincident objects (e.g., a lump of clay and a statue) and concerning identity and persistence through mereological change (e.g., the puzzle of the Ship of Theseus).

A philosopher that can be understood as trying to fulfil DesideratumESCO is Peter van Inwagen. For van Inwagen (1990), there are only metaphysical simples (i.e., mereological atoms, elementary particles) and living organisms (this is a semi-nihilist view[99]). Living organisms are the only composite objects.

Van Inwagen (1990) has argued that each of the true sentences apparently about composite objects report a fact about the existence of *something*, even though it does it misleadingly or loosely. All reported facts about artefacts and non-living 'natural' objects are actually facts about the arrangement of simples. That is why those sentences are true.

For van Inwagen (1990), while in ordinary contexts, the sentence 'there are tables' is true because it expresses certain propositions (about simples arranged in certain ways), the sentence 'there are no tables' is also true when it is used by a metaphysician to express different propositions (about composite objects). In ordinary contexts, this sentence is neutral with respect to competing metaphysical theories (theories that disagree on whether there are composite objects or not). However, in philosophical contexts, it implies that there are composite objects[100].

Following Quine (1948), van Inwagen (1990) has believed that if a philosopher denies the existence of some kinds of objects, he should give an account of the sentences whose existential quantifiers bind variables that apparently range over those objects. This account can be given by using the paraphrase strategy. For van Inwagen (1990), sentences about inanimate composite objects can be paraphrased in a language that does not existentially quantify over anything material besides simples. These paraphrases reveal why sentences about complex objects are true in ordinary contexts. For example, sentences about 'tables' can be paraphrased by using a variably polyadic predicate 'are arranged tablewise' into 'The xs are arranged tablewise'. This technique of paraphrasis enables us to capture what is right about ordinary sentences concerning complex objects.

It seems that there are a lot of potential ways to paraphrase sentences about composite objects. Van Inwagen (1990) has mentioned three: plural quantification over simples, sets, and

[99] I endorse compositional nihilism (the view that composition never occurs) instead of compositional semi-nihilism, but I will not engage with van Inwagen's (1990) argument for semi-nihilism. See Sider (2013) for a reason to reject van Inwagen's semi-nihilism.

[100] Though for objections against van Inwagen's (1990) contextualism, see Liggins (2008).

ordinary quantification over a region of space. For instance, a region of space automatically sorts things into those that fall within it and those that do not. Thus, sentences apparently about artefacts can be paraphrased into sentences that do not appear to be about artefacts. One example is this: the sentence 'Some chairs are heavier than some tables' can be paraphrased into *"There is an x such that x is a region of space and the things that fall within x are arranged chairwise and there is a y such that y is a region of space and the things that fall within y are arranged tablewise and the things that fall within x are heavier than the things that fall within y"* (van Inwagen, 1990, p.110). We will see later that these different ways of paraphrasing need to be considered to find out whether specific sentences about artefacts can be paraphrased.

## 4.3. Paraphrasing Is Not Always Possible

Van Inwagen (1990) has emphasised that a necessary condition on an adequate paraphrase is that anything true that can be said in the original language can be said in the 'language of refuge'. Nevertheless, Uzquiano (2004) has argued that it is impossible to translate every sentence apparently about composite objects into a sentence about simples. He has argued that the resources of plural reference and plural quantification are not sufficient for translating all the ordinary statements apparently about composite objects into plural statements that mention only simples. I think that this shows that van Inwagen's paraphrase strategy does not fulfil DesideratumESCO.

For instance, according to Uzquiano (2004), *"singular quantification over composites can be paraphrased as plural quantification over simples, but plural quantification over composites cannot be paraphrased as plural quantification over simples"* (p.434). For example, it is unclear how the cardinality comparison 'The chairs outnumber the tables' can be paraphrased as plural quantification over simples. This sentence is taken to assert the existence of a one-one correspondence between tables and some of the chairs, but not the reverse. It is unclear how we can express the existence of such correspondence without mentioning tables and chairs.

Uzquiano (2004, p.430) has emphasised that *"a minimal constraint on a satisfactory paraphrase is that it should track the apparent truth conditions of its target statement"*. So, I will explain the above example by talking about truth-conditions. It will be argued that paraphrased

sentences inspired by van Inwagen's paraphrase strategy do not track the truth-conditions of sentences apparently about composite objects.

It seems wrong to paraphrase 'The chairs outnumber the tables' as 'Simples arranged chairwise outnumber simples arranged tablewise'. The original sentence counts wholes, while the paraphrased sentence counts simples. The original sentence could be true, while the paraphrased sentence could be false. Imagine that we are in a situation where we count 4 chairs and 3 tables. The chairs are miniatures, and the tables are normal-sized. Because of that, there are more simples arranged tablewise than simples arranged chairwise, and so, the simples arranged tablewise outnumber the simples arranged chairwise. The original sentence is true, but the paraphrased sentence is false. Therefore, the paraphrased sentence does not have the same truth-conditions as the original sentence. Therefore, the paraphrased sentence is not an adequate paraphrase of the original sentence.

Furthermore, for Uzquiano (2004), it is also unclear how to paraphrase statements containing plural predicates that seem to be collectively satisfied by some composite material objects. An example is the sentence 'Some bricks are touching each other'. The plural predicate 'touching each other' seems to be collectively satisfied by some bricks. It seems impossible to analyse this apparent plural predication collectively satisfied by bricks exclusively in terms of singular or plural predicates collectively satisfied by simples.

I will also explain this example by talking about truth-conditions. It seems wrong to paraphrase 'Some bricks are touching each other' to 'Some simples arranged brickwise are touching each other'. The original sentence is talking about wholes touching each other, while the paraphrased sentence is talking about simples touching each other. The original sentence could be false, while the paraphrased sentence could be true. Consider a single brick. In this case, it seems that the paraphrased sentence is true because there are some simples arranged brickwise and those simples are touching each other. However, the original sentence is false because a brick does not touch another brick. There is only one brick! Therefore, the paraphrased sentence does not have the same truth-conditions as the original sentence. Therefore, the paraphrased sentence is not an adequate paraphrase of the original sentence.

Uzquiano (2004) has argued that resorting to regions of space or sets in order to accomplish the paraphrases faces problems. He has talked mainly about sets, but he has claimed that similar

remarks can be stated for regions of space. I will describe the case of resorting to regions of space instead of sets because later, I will talk about different metaphysical theories about spacetime to present my view and differentiate it from the paraphrase strategy. For Uzquiano (2004), the use of regions of space is not eliminable (i.e., we cannot paraphrase talk of regions by using a different vocabulary), and hence, sentences about regions of space are true, only if these regions of space exist. These statements are about regions of space that contain arrangements of simples rather than simply about arrangements of simples. If this is true, then one should consider identifying objects such as tables and chairs with regions of space that contain simples under certain arrangements. This contrasts with nihilists' claim that there are no such material objects. Even though in this account, chairs and tables are not mereological composites, it seems that certain regions of space are chairs and tables (those regions can be complex objects, which are generated out of simpler components, even though they are not mereological composites). The resulting combination is unattractive. The cost of using quantification over regions of space for purposes of a general and systematic method of paraphrase is to reject the claim that there are no such things as chairs and tables. Even though this is not a decisive reason against nihilism and semi-nihilism as these views can be proposed as answers to the special composition question, this seems a stiff price to pay in exchange for making nihilism and semi-nihilism palatable. These views cannot be combined with the denial of the existence of chairs and tables.

Uzquiano (2004) has not said a lot about why the resulting view is unattractive and a stiff price to pay. A way to develop his objection is to say that the resulting view fails to vindicate many ordinary judgements. For example, initially, we were believing that tables can be moved from one location to another and that they are made of atoms. But it is unclear why these beliefs are true if tables are regions of space.

I think that ordinary sentences about tables could still be true, but their truthmakers would be different from what we expected. For example, the ordinary sentence ‘Tables are made of atoms’ could be made true by the relevant regions of space and the atoms that exist there. ‘Tables can be moved from one location to another’ can be true because simples arranged tablewise occupy different regions of space at different times. A table can be identical to different regions of space at different times. Tables may be regions of space but some sentences about them may include

simples as their truthmakers. Paraphrases can be given to show this. Initially, we were not believing that tables are regions of space, but this does not seem sufficient reason to reject this belief.

I have a different reason to reject the view that higher-level objects can be identified with regions of space or sets. My worry is that we do not have other reasons to accept regions of space or sets in our ontology[101], but paraphrases that mention them push us to do so. If our only reason to accept these entities is to state paraphrases, postulating their existence is ad hoc. We do it merely to save compositional nihilism. Furthermore, we may not want to accept regions of space and sets in our ontology because of the methodological principle of simplicity.

As a result, compositional nihilists should search for a different way to fulfil DesideratumESCO. In the next section, we will discuss an alternative strategy for doing this.

### 4.4. Truthmaker Theories

As the paraphrase strategy of van Inwagen fails to fulfil DesideratumESCO, someone that wants to continue endorsing nihilism needs to examine whether alternative nihilist views can fulfil this desideratum. An alternative nihilist view is the truthmaker theory that was suggested by Heil (2003, see section 1.5) and later developed by Cameron (2008a, 2008b, see section 2.4.1)[102]. This truthmaker theory claims that sentences can be strictly and literally true, even if their truthmakers are very different from the objects that seem to be mentioned in these claims. For example, sentences about complex objects can be true, even if we are not ontologically committed to composite objects. Their truthmakers can be physical simples. While Heil (2003) has claimed that complex objects and simples exist *simpliciter*, Cameron has made a distinction between entities that exist *fundamentally* and entities that exist *derivatively*.

I distinguish between 'general truthmaker theories' and 'particular truthmaker theories'. General truthmaker theories give a general account of how sentences about complex objects can be made true by simples, but they do not give truth-conditions of particular sentences about

[101] See Rayo (2009) and Cameron (2010d) for reasons to believe that mathematical truths do not bring an ontological commitment to mathematical entities.

[102] Not every truthmaker theory is a nihilist view. Truthmaker theories can be used by friends of restricted composition and universalists. A different truthmaker theory can be used in a nihilist's explanation of how sentences about complex objects could be made true by simples.

complex objects. General truthmaker theorists may say that for parsimonious reasons, we should believe that sentences about complex objects are made true by simples, and we do not have a good reason to think otherwise. That is a general explanation of why sentences apparently about composite objects are made true by simples, and general truthmaker theorists consider it a good and sufficient reason to endorse nihilism. However, particular truthmaker theorists give the above general account, but they also give truth-conditions of particular sentences about complex objects. According to general truthmaker theories, having independent reasons to be compositional nihilist (e.g., methodological principle of simplicity) and giving a general account of how sentences about complex objects can be made true by simples are sufficient to make nihilism a viable and plausible view. On the other hand, particular truthmaker theorists believe that we should also give the truth-conditions of particular sentences about complex objects to motivate nihilism satisfactorily. They take DesideratumESCO seriously. Particular truthmaker theorists think that if we cannot fulfil DesideratumESCO, nihilism faces a problem. In the next section, I will argue that Heil's and Cameron's views count as general truthmaker theories, and so, they cannot fulfil DesideratumESCO.

### 4.5. A General Truthmaker Theory is not Sufficient for Fulfilling DesideratumESCO

Uzquiano (2004) has shown that van Inwagen's paraphrase strategy is not sufficient to fulfil DesideratumESCO. General truthmaker theorists do not even attempt to fulfil DesideratumESCO. Conceptual reduction and the paraphrase strategy could be used to fulfil DesideratumESCO. If we can conceptually reduce composite object terms to simple terms, then we can give the truth-conditions of sentences apparently about composite objects by using simple terms. Otherwise, if we can improve van Inwagen's paraphrase strategy to be able to paraphrase every sentence apparently about composite objects, then we can give nihilist-friendly truth-conditions of those sentences.

However, Heil (2003) has rejected the possibility of conceptual reduction and Cameron (2008a, 2008b) has rejected the possibility of paraphrasing every sentence apparently about composite objects. Still, they thought we have independent reasons to be nihilists (Heil: causal-exclusion argument, Cameron: the methodological principle of simplicity). Their truthmaker theories can be understood as a way to fulfil a different desideratum:

DesideratumESCOGTT (‘GTT’ stands for General Truthmaker Theory): A compositional nihilist should explain in general why true ordinary sentences apparently about compositional objects are true, even though there are no composite objects.

General truthmaker theorists explain in general why sentences apparently about composite objects are true, but they do not give truth-conditions of particular sentences because they do not think it is needed. They think that their independent reasons to be nihilists and fulfilling DesideratumESCOGTT are sufficient to make a nihilist truthmaker theory a plausible metaphysical view.

I do not think that they are sufficient. I think that a truthmaker theorist may have independent reasons to be a nihilist, but these reasons are undermined if this theorist cannot fulfil DesideratumESCO. They can say that ordinary sentences apparently about composite objects are made true by simples. This is a general explanation of why those sentences are true, but this may not persuade someone that wants a particular explanation for each of those sentences. They may ask the nihilist to explain why exactly each of those sentences is made true by simples. They may ask “Under what conditions each of those sentences apparently about composite objects are made true by simples?”.

It may seem unclear how simples can make true sentences apparently about composite objects. For example, consider again the sentence 'The chairs outnumber the tables'. A non-nihilist might ask for its truth-conditions if nihilism is true. They might say “It seems that there are 5 chairs and 4 tables, and there are more chairs than tables! We are talking about chairs and tables! Not about simples. It seems that there are things out there that are chairs and tables, and we count them. It is unclear how we can make sense of our counting and comparisons in a nihilist ontology. Why exactly is the sentence 'The chairs outnumber the tables' true if nihilism is true? Under what conditions is it made true by simples?”.

Cameron may reject the need for particular truth-conditions. He may say that if the existence of some simples, suitably arranged, make it true that there are three chairs and two tables (which they can do, on his view), then it follows that the chairs outnumber the tables. Wherein lies the problem?

The problem is that we want to know *which* are the suitable arrangements. We want to know *when* simples make it true that there are three chairs and two tables. If we learn this, we can justify better our belief that composite objects are not needed for the truth of our ordinary sentences apparently about composite objects.

If we do not say something specific about the truth-conditions of each sentence apparently about composite objects (or at least give a strategy of how to provide such truth-conditions), it seems like we left something unexplained. It seems like we need to have faith that simples make true sentences apparently about composite objects. It is a mystery why simples suffice for the truth of sentences apparently about composite objects. But if we give precise truth-conditions about particular ordinary sentences apparently about composite objects, then we explain better why ordinary sentences apparently about composite objects can be true even though there are no composite objects. That is the reason for asking the compositional nihilist to fulfil DesideratumESCO instead of merely fulfilling DesideratumESCOGTT[103].

In the next sections, I will present my particular truthmaker theory and argue that it can give the specific truth-conditions of every sentence about complex objects. By doing this, we describe more clearly and precisely how our sentences can be made true by simples and reveal in more detail why we do not need composite objects as the truthmakers of our sentences. Therefore, we fulfil DesideratumESCO.

## 4.6. A Particular Truthmaker Theory

In this and subsequent sections, I will propose an alternative nihilist view: a new truthmaker theory. This new theory explains in more detail why particular ordinary sentences about complex objects are true, even if there are no composite objects. As a result, it has an advantage over the alternative truthmaker theories. It does not claim that we can paraphrase all the sentences about complex objects by just using a paraphrase strategy. Still, there is a way to explain why these

[103] A different way to express the main idea of this section is arguing that Cameron's view is not a 'theory' at all. It is a general *claim* about what makes truths that are apparently about complex objects true (viz, simples). That is a claim that can only be assessed if we spell out exactly *how* truths about simples make those truths true. Otherwise, we just have an untested hypothesis. It is just that spelling out that I am engaged in.

sentences, including the ones presented by Uzquiano (2004), are true. This is done by using resources from van Inwagen's paraphrase strategy and Cameron's truthmaker theory.

I will use technical terminology suggested by Cameron (2008a). According to him, there are entities that exist fundamentally and we are ontologically committed to them, and there are entities that exist derivatively but we are not ontological committed to them[104]. Sentences about entities that exist derivatively are made true by entities that exist fundamentally.

I will also use technical terminology presented by van Inwagen (1990). I will use his talk about simples arranged table-wise, chair-wise, and so on, to give the truth-conditions of sentences apparently about composite objects.

I will argue that my particular truthmaker theory has the resources to explain why the sentences mentioned by Uzquiano (2004) are true if nihilism is true. This explanation cannot be given by merely paraphrasing these sentences. A paraphrase strategy cannot provide such an explanation, and hence, we have a reason to prefer a truthmaker theory.

There are differences between the paraphrase strategy and my truthmaker theory. While the paraphrase strategy mentions only entities that are the truthmakers of sentences apparently about composite objects, my particular truthmaker theory mentions more things. Paraphrases mention only the relevant entities that exist fundamentally in the world. Paraphrase strategists believe that they can articulate, in composite-free language, exactly what is going on in the world of fundamental existents, when a positive-composite featuring sentence is true. Their paraphrases include only the truthmakers of sentences apparently about composite objects.

However, the truth-conditions of a sentence apparently about composite objects, suggested by my truthmaker theory, include paraphrases, but they also include information about our language and spacetime. They mention when certain words and sentences are satisfied by the world, and they mention spacetime to pick out different truthmakers of a word. Words and spacetime are mentioned, but they are not the truthmakers of sentences apparently about composite objects. The truthmakers are just simples and the relations between them. I do not think that the

[104] I will not choose between the Quinean criterion of ontological commitment and the truthmaker criterion of ontological commitment. Instead, my focus is on finding out which, if any, nihilist account can satisfy DesideratumESCO. I think that a nihilist should fulfil DesideratumESCO independently of which criterion of ontological commitment is correct.

truth-conditions of sentences apparently about composite objects should only refer to the truthmakers of these sentences. We can use tools that help us to describe nihilist-friendly truth-conditions. Words and spacetime can be such useful tools.

## 4.7. Metaphysics of Spacetime

Spacetime needs to be mentioned when we describe the truth-conditions of particular sentences about complex objects. Therefore, before giving examples of this kind of description, a digression is needed to present current metaphysical theories of spacetime.

There are different conceptions of space-time. According to Pooley (2013), *"Substantivalists maintain that a complete catalog of the fundamental objects in the universe lists, in addition to the elementary constituents of material entities, the basic parts of space-time. Relationalists maintain that spacetime does not enjoy a basic, nonderivative existence. According to the relationalist, claims apparently about spacetime itself are ultimately to be understood as claims about material entities and the possible patterns of spatiotemporal relations that they can instantiate"* (p.522). For substantivalism, spacetime is a genuine entity. Spatial and temporal distance relations hold between the points of spacetime rather than (only) between material events. Spacetime points are ordered pairs of pointlike substantival places with instants of time. They instantiate qualitative features. The geometrical structure of spacetime is a fundamental feature of reality. For example, a moving rod's contraction reflects both how it is made up and the nature of its spatiotemporal environment. However, relationalists claim that spatiotemporal facts about the universe are solely facts about instantaneous relative distances between particles and facts about the time intervals between the successive instantaneous material configurations. There are only spatiotemporal distance relations between material events. For example, a moving rod's contraction reflects only how it is made up. Relationalists claim that instantaneous states correspond to sets of inter-particle distances, while substantivalists hold that instantaneous states correspond to positions defined with respect to spacetime structure. Whereas substantivalists argue that spatiotemporal geometry is primitive, relativists argue that spacetime geometry is secondary and can be defined in other terms.

Contrary to Pooley (2013), Lam (2007, 2008) has argued that spacetime is not a set of points possessing some intrinsic properties together with some spatiotemporal relations. Instead, considerations about space-time singularities give us reasons to conceive spacetime as nonlocal and pointless at the fundamental level. Spacetime is nonlocal in the sense that it does not include fundamental space-time points. Space-time points exist at a less fundamental level[105]. Lam has advocated a nonatomistic spacetime metaphysics, which can be either substantivalist or relationalist. If we endorse substantivalism, we have good reasons to believe that the spacetime structure with its global and structural aspects is prior to the local entities, such as spacetime points or pointlike bits of matter. Space-time is understood as a physical structure that is a complex network of relations. It is an irreducible whole and possesses irreducible global properties. These properties are independent of the existence of any particular space-time points or regions. E.g., the singular feature of space-time is a property of the whole space-time structure. The space-time structure can be described in mathematical terms that refer to an algebraic structure and do not mention space-time points.

## 4.8. Nihilist-Friendly Truth-Conditions of Sentences about Complex Objects

My particular truthmaker theory can give us nihilist-friendly truth-conditions of sentences apparently about composite objects. These conditions suffice to fulfil DesideratumESCO. I believe that the truthmakers of the sentences presented by Uzquiano (2004) can be just simples and the relations between them.

Let's go back to the sentences mentioned by Uzquiano (2004). Suppose that space-time points exist fundamentally and consider again the sentence 'The chairs outnumber the tables'. When this sentence is true can be described as follows: "Some spacetime points exist fundamentally, and simples arranged chairwise exist fundamentally in these spacetime points, and hence, they can truly be called 'chair', and in other spacetime points, other simples arranged chairwise exist fundamentally, and they can also truly be called 'chair'. Some spacetime points exist fundamentally, and simples arranged tablewise exist fundamentally in these spacetime points, and hence, they can truly be called 'table', and in other spacetime points, other simples arranged

[105] In contrast, Esfeld & Lam (2008) have argued that spacetime points are as fundamental as spacetime structure.

tablewise exist fundamentally, and they can also truly be called 'table'. The word 'chair' is satisfied more times than the word 'table'. That is why it is true[106] to say that 'Chairs outnumber the tables'".

I mention spacetime points because 'chairs' and 'tables' can be satisfied different times on different occasions. It helps us to leave it open how many truthmakers these words have on each occasion. 'In other spacetime points' is used to mention as many truthmakers of 'chair'[107] as there are.

If we did not mention spacetime points we could only do the following: "Simples arranged chairwise exist fundamentally, and hence, they can truly be called 'chair' and other simples arranged chairwise exist fundamentally, and hence, they can truly be called 'chair'…". I think it is unclear whether we can identify more than two truthmakers of 'chair' if we give the above truth-conditions. Mentioning spacetime points helps us to identify more clearly each truthmaker of 'chair'. Each truthmaker occupies different spacetime points. Still, as we will see below, if spacetime points do not exist fundamentally, we can give the truth-conditions of sentences apparently about composites objects without referring to spacetime points. We can give truth-conditions that are friendly to relationalists about spacetime.

Moreover, mentioning spacetime points and word-satisfactions helps us to do the proper, nihilist-friendly counting. The outnumbering is between how many times the word 'chair' is satisfied and how many times the word 'table' is satisfied. It is not between composite objects, sets of simples, or regions of space. Because of that, we are not ontologically committed to the fundamental existence of something that can be identified with complex objects.

Does this ontologically commit us to words? I will not take a stance on it. We may be able to give truth-conditions of sentences about words without referring to words as entities that exist fundamentally. But even if they do exist fundamentally (token words may be physical objects and type words may be abstract objects), compositional nihilism is not threatened. Complex objects obviously cannot be identified with words.

[106] More precisely, "That is why it is true *in ordinary contexts…*". In what follows, I omit this for ease of exposition.
[107] By 'truthmakers of 'chair'', I mean entities that make true sentences about chair and bring about the phenomenon described by this word. 'Chair' is not true or false.

Note that even though I refer to spacetime points, spacetime points are not truthmakers of ‘chair’. A truthmaker of ‘chair’ is only simples arranged chair-wise. Spacetime points are mentioned to give the precise truth-conditions of ordinary sentences apparently about composite objects. This mentioning is a useful tool. Spacetime points do not make true sentences about chairs because these sentences could be true, even if spacetime points did not exist fundamentally (relationalism would be true).

How do I distinguish between truthmakers and tools? Truthmakers are the things that must exist fundamentally to explain why the phenomenon described by a sentence occurs. For example, simples are truthmakers of sentences apparently about composite objects because if simples did not exist, the phenomena described by those sentences would not occur. There would be nothing to bring about the phenomena described by those sentences. Tools are just things that help us to describe nihilist-friendly truth-conditions. They may exist fundamentally or derivatively, but they do not bring about the occurrence of the phenomenon described by a sentence apparently about composite objects.

The truthmakers of apparent plural predication collectively satisfied by composites can also be just simples and the relations between them. Consider again the sentence ‘Some bricks are touching each other’. When this sentence is true can be described as follows: “Some spacetime points exist fundamentally, and simples arranged brickwise exist fundamentally in these spacetime points, and hence, they can truly be called ‘brick’, and in other spacetime points, other simples arranged brickwise exist fundamentally, and they can also truly be called ‘brick’. For all simples that can truly be called ‘brick’, there are some other simples that can truly be called ‘brick’, and some of the first simples are touching some of the second simples. That is why it is true to say that ‘Some bricks are touching each other’”.

When we count how many times a word is satisfied and an arrangement of simples satisfies this word, some of these simples are excluded from being an additional way that this word is satisfied. For example, if certain simples arranged brickwise satisfy the word ‘brick’, then it is true to say that ‘there is a brick’. It is wrong to say that some of them also satisfy the word brick, and as a result, ‘there are two bricks’ is true.

I believe that *many* simples can be truthmakers of '*a* brick'. This does not imply that different things are identical to one thing. I do not advocate many-one identities for the reasons given in chapter 3.

I have assumed so far that spacetime points exist fundamentally. But what if spacetime points do not exist fundamentally and the spacetime structure exists fundamentally? Then, different truth-conditions should be given.

For example, consider again the sentence 'The chairs outnumber the tables'. When this sentence is true can be described as follows: "There exists fundamentally a space-time structure STS. In a region of STS, simples arranged chairwise exist fundamentally, and hence, the word 'chair' is satisfied by them. Simples are arranged in similar ways in other regions of STS, and hence, the word 'chair' is also satisfied by them. In a region of STS, simples arranged tablewise exist fundamentally, and hence, the word 'table' is satisfied by them. Simples are arranged in similar ways in other regions of STS, and hence, the word 'table' is also satisfied by them. The word 'chair' is satisfied more times than the word 'table'. That is why it is true to say that 'Chairs outnumber the tables'".

The only truthmakers of the sentence 'The chairs outnumber the tables' are simples and relations between them. The space-time structure is mentioned to identify the truthmakers of this sentence. Similar truth-conditions cannot be given by proponents of a paraphrase strategy as they do not want their paraphrases to include talk about word satisfaction and when a sentence is true.

Likewise, the truthmakers of apparent plural predication collectively satisfied by composites can also be just simples and the spacetime structure. Consider again the sentence 'Some bricks are touching each other'. When this sentence is true can be described as follows: "There is a space-time structure STS. Simples, which are arranged brick-wise, exist fundamentally in different regions of STS, and thus, they can truly be called 'bricks'. Some of the simples in each of these regions are touching some of the simples in at least one of the other regions. That is why it is true to say that 'Some bricks are touching each other'".

It could be argued that in the two aforementioned examples of giving truth-conditions, there seems to be reference to regions. As a result, tables and chairs can be identified with regions of spacetime. We have four options: (a) accept this result, (b) give truth-conditions of sentences

about regions that do not refer to regions as entities that exist fundamentally, (c) paraphrase ‘region of STS’ in the aforementioned truth-conditions that mention regions, or (d) reject the truth-conditions that mention regions and give truth-conditions that mention distances instead.

Option (a) leads us to identify tables with regions of spacetime. This is a plausible view only if we have independent reasons to think that regions of spacetime exist fundamentally. If the only reason to postulate regions in our ontology is that they help us to be compositional nihilists, the resulting view is ad hoc.

Option (b) tells us that if we accept the aforementioned truth-conditions that mention regions but give the truth-conditions of other sentences about regions without assuming that regions exist fundamentally, then we have a reason to believe that regions of spacetime do not exist fundamentally. Truth-conditions of sentences about regions that do not presuppose that regions exist fundamentally can be given by presenting truth-conditions similar to the ones that I have given. Truth-conditions of sentences about regions can be given by referring to simples or the spacetime structure. For the sake of brevity, I am not discussing this option further. The arbitrariness of deciding that we should not give region-free truth-conditions of sentences apparently about composite objects leads me away from this option.

Option (c) tells us to use the aforementioned truth-conditions that mention regions and paraphrase ‘regions of STS’ to something that does not refer to regions. Could we use ‘region-of-STS-wise’ to avoid ontological commitment to regions? This is inspired by van Inwagen, but I am not sure whether he would accept that. It looks a bit too easy.

Option (d) is viable only if distances exist fundamentally. If distances exist fundamentally, things are easier for the compositional nihilist. Nihilist-friendly truth-conditions can be given without referring to anything that can be identified with complex objects. We will see one example of those truth-conditions in what follows.

Let’s see option (d) see in more detail. Suppose we do not have good reasons to believe that spacetime exists fundamentally. Our best scientific and philosophical theories suggest that spacetime enjoys only a derivative existence (relationalism). Still, spatiotemporal distances exist fundamentally. I think relationalists about spacetime can give similar truth-conditions of sentences about complex objects. For instance, it can be explained why the sentence ‘The chairs outnumber

the tables' is true: "Simples arranged chairwise exist fundamentally, and it is true to call them 'chair', and in different spatiotemporal distances away from them, simples arranged chairwise exist fundamentally and they can truly be called 'chair'. Simples arranged tablewise exist fundamentally, and it is true to call them 'table', and in different spatiotemporal distances away from them, simples arranged tablewise exist fundamentally, and they can truly be called 'table'. The word 'chair' is satisfied more times than the word 'table'. That is why it is true to say that 'chairs outnumber the tables'".

A nihilist that wants to fulfil DesideratumESCO has several options. Two of them are my particular truthmaker theory and the paraphrase strategy of van Inwagen. An advantage of the former over the latter is that only my particular truthmaker theory can reveal precisely what the world must be like for ordinary sentences about complex objects to be true. A view that promotes paraphrases does not reveal why exactly certain kinds of sentences, mentioned by Uzquiano (2004), are true. This is so because they cannot be paraphrased. Mentioning only fundamental terms, as van Inwagen has done, does not suffice to provide the truth-conditions of all the sentences about complex objects. Instead, this becomes possible, if resources from both Cameron's truthmaker theory and van Inwagen's paraphrase strategy are used. As the paraphrase strategist does not want to rely on resources from a truthmaker theory, they cannot use what I suggested in this chapter to develop their view.

If we promote a paraphrase strategy, and as it seems, we cannot paraphrase all the sentences about complex objects into sentences only about simples, then we face a dilemma. Either we keep endorsing nihilism and have an imprecise or false view, or we reject nihilism. A nihilist may continue to endorse his view because he believes that the ontological simplicity of his view gives him a good reason to not reject it. For him, ontological simplicity trumps the paraphrase criterion. He accepts that his view has a deficiency, but he claims that his view is the most plausible theory we have. He claims that we cannot paraphrase because we have not thought about these issues creatively enough yet. However, the paraphrases that we can state give us a good reason to believe that we are on a good track. In the future, we may be able to paraphrase all the relevant ordinary sentences. Alternatively, a nihilist may reject her view because she considers it very important to be able to paraphrase. For her, the paraphrase criterion trumps ontological simplicity.

I think that the good reason that we have to endorse nihilism (ontological simplicity) should lead us to seek alternative ways to explain why ordinary sentences about complex objects are true. One way to do this is by using my particular truthmaker theory. This view has an advantage over van Inwagen's account because it can describe the precise truth-conditions of the sentences that are problematic for his paraphrase strategy. Therefore, there is not a good reason to stick with the paraphrase strategy, despite its problems.

## 4.9 Fundamental Existence of Sets and the Particular Truthmaker Theory

I have assumed so far that sets do not exist fundamentally. However, arguments were given for their fundamental existence. Presenting these arguments in detail and arguing against them is out of the scope of this thesis. Still, it is interesting to examine the consequences for the truthmaker theory if sets exist fundamentally.

Sider (2013) has not responded to Uzquiano (2004), but his view can be mentioned to show that there is nothing wrong with being a nihilist and identifying complex objects with sets of simples. Nihilism is the view that there are no composite objects in the mereological sense. It is not incompatible with the existence of composite objects in the set-theoretic sense.

According to Sider (2013, p.284), *"to do physical geometry we need a way to attribute a feature (such as openness or path-length) to a collection of infinitely many points. And the natural way to do this is to posit a "gathering entity", an entity that somehow incorporates those points, and then attribute the features to the gathering entity".* The gathering entity can be a set of space-time points. These features cannot be attributed to space-time points.

Sider has accepted the existence of sets, and as a result, he identified ordinary objects with sets of particles or spacetime points. Sets are metaphysically fundamental. Therefore, ordinary objects exist in the fundamental sense since they are sets, but they do not exist as composite objects that contain particles or spacetime points as parts. That is, ordinary objects are composites in the set-theoretic sense, but they are not composites in the mereological sense.

If sets exist and complex objects can be identified with sets of simples, my particular truthmaker theory is still useful. We can use it to claim that even though we believed implicitly

that there are composite objects in the mereological sense and there are no such objects, sentences about complex objects are true in virtue of something else: sets of simples. Then, we can give truth-conditions inspired by my aforementioned truth-conditions. This is still a nihilist view as nihilism merely claims that there are no composite objects in the mereological sense. This is a surprising nihilist conclusion, but it does not refute nihilism.

The resulting metaphysical view does not face the problem of being ad hoc. If Sider is right, we have independent reasons to believe that sets exist fundamentally. A problem occurs if we postulate the existence of something to save compositional nihilism.

If sets exist fundamentally and complex objects can be identified with sets of simples, the paraphrasis strategy is also useful. We can paraphrase sentences apparently about composite objects to sentences that refer only to simples and sets. If sets exist fundamentally, my particular truthmaker theory does not have an advantage over the paraphrase strategy. Both theories can fulfil DesideratumESCO. Still, since it is possible that sets do not exist fundamentally, it is good news for the nihilist that there is a view that fulfils DesideratumESCO even if sets do not exist fundamentally.

### 4.10. Other Paraphrase Strategies

There is an attempt to defend van Inwagen's paraphrase strategy (Brenner, 2015) and a suggestion of an alternative paraphrase strategy (Cotnoir, 2013a). I will present these views and argue that there are reasons to reject them. Therefore, it seems that my particular truthmaker theory provides us with the only way to fulfil DesideratumESCO.

#### 4.10.1. Brenner's Defence of van Inwagen's Paraphrase Strategy

First, Brenner (2015) has argued that nihilists should not worry about the arguments of Uzquiano (2004) because non-nihilists are forced to accept the ideological commitments employed by the nihilists in their talk of "xs arranged F-wise". It seems that if someone believes in the existence of composite objects like tables, she also believes that there are xs arranged table-wise. The non-nihilist should accept that if certain simples compose molecules, then these simples are

arranged molecule-wise. It seems that for the non-nihilists, xs compose an F *because* they are arranged F-wise. Therefore, according to Brenner (2015), if the nihilist needs to employ one of the technical devices mentioned by Uzquiano (2004) to describe how the world is, so does the non-nihilist. If the nihilist faces the problem of not being able to provide these descriptions, so does the non-nihilist. Thus, this difficulty cannot be mentioned as a reason to reject nihilism.

However, I think that it is more crucial for the nihilist to be able to paraphrase rather than the non-nihilist because the paraphrases give us a reason to believe that talk about composite objects is just an easy and avoidable way to describe reality. If we cannot do the paraphrases or provide the truth-conditions of these sentences in another way, it may be because there are truths that cannot be expressed by referring only to simples. They can only be expressed by referring to composite objects.

Even though Brenner's argument does not succeed at showing that the nihilist and the non-nihilist face the same problems, I think that we can get inspired by some of Brenner's remarks and argue that my particular truthmaker theory does not face any ideological cost. It may be argued that my truthmaker theory faces an ideological cost because I need to introduce a complicated way to show why sentences about complex objects are true even if there are no composite objects. But the non-nihilist can just say that sentences about complex objects are true because composite objects, which are mentioned in these sentences, exist. Describing the truth conditions is ideologically simpler if non-nihilism is true. Therefore, non-nihilism has a theoretical advantage over nihilism.

However, if I ask the non-nihilist 'Under what conditions, do fundamental objects make it so that certain sentences about composite objects are true?', the non-nihilist must describe the same truth-conditions as I did. Therefore, I did not suggest something that the non-nihilist does not need to suggest too. Non-nihilism seems ideologically simpler when we only consider the truth conditions of sentences about complex objects. But when we also consider the truth-conditions of sentences about fundamental objects, the theories are equally ideologically simple.

### 4.10.2. Counterpart Paraphrase Strategy

Second, Cotnoir (2013a) has suggested an alternative paraphrase strategy. He has reinterpreted the parthood and composition relations as modal and reduced composition and parthood to counterpart relations. This paraphrase strategy aims to mimic talk of both ordinary objects and their mereological relations. Cotnoir (2013a) has believed that this counterpart paraphrase strategy meets the challenge of explaining ordinary talk about material objects and their mereological relations.

For this paraphrase strategy to work, we need to accept the possibility of heterogeneous extended simples. A simple is extended if it is bigger than a point-sized particle. A simple is heterogeneous if it differs from itself (e.g., along with its temporal or spatial axe). Following Ehring (1997) and McDaniel (2009), Cotnoir (2013a) has believed that *"qualitative heterogeneity across space consists in exemplifying non-resembling localised tropes at different spatial regions"* (p.230). For example, a simple can be red at region r1 and blue at region r2 by virtue of exemplifying different tropes in these different regions.

According to Cotnoir (2013a, p.230), *"nihilists should reinterpret ordinary talk of mereological relations as intensional: as holding between objects in different worlds"*. The employment of counterpart relations between objects at different worlds shows that there is no need for a material parts ontology.

Cotnoir (2013a) has defined some terms that he used to present his paraphrase strategy. First, *"**P-ARRAY** A is a P-array iff A is a non-empty set of spacetime points with a specific distribution of instantaneous localised tropes"* (p.231). Second, *"**PARTITION** A set P of non-empty sets is a partition of A if: (i) P covers all of A (i.e. $\cup P = A$); and (ii) the members of P are pairwise disjoint (i.e. $pi \cap pj = \emptyset$ for any pi and pj in P s.t. $i \neq j$)"* (p.231). A partition 'carves up' a P-array into disjoint regions and locates objects within this array. Members of a partition are regions occupied by material objects. Third, *"**P-DUPLICATE** wi and wj are P-duplicates iff they are partitions on the same P-array"* (p.232). That is, two worlds are duplicates, iff they exhibit the same pattern of distribution of tropes across points in spacetime but have different objects occupying different regions. Fourth, *"**P-COUNTERPART** ẋẋwi and ẏẏwj are P-counterparts iff wi and wj are P duplicates, and $\cup|xx|wi = \cup|yy|wj$"* (p.232). That is, some objects are P-counterparts of some other objects, iff they collectively occupy the same region of the same P-array.

For Cotnoir (2013a), talk about composite objects is not strictly and literally true. Still, the mereological language can be accounted for in a strict and literally true fundamental language, and hence, the ordinary use of this language is legitimate and correct. The aforementioned notions can be used to interpret mereological talk.

For example, *"**PART** 'x is part of y' is correct at w0 iff there are worlds w1 and w2 such that they are P-duplicates of w0, and |x|w1 ⊆ |y|w2"* (p.233). Both x at w1 and y at w2 are heterogeneous extended simples. In w1, x occupies a subregion of the region that y occupies in w2. Composition does not occur in any possible world. Still, in cases like this one, it is correct to say that an object is part of another.

The composition relation can be paraphrased similarly: *"**COMPOSE** 'xx compose y' is correct at w0 iff there are worlds w1 and w2 such that they are P-duplicates of w0, and ẋẋw1 and ẏw2 are P-counterparts"* (p.233). Both xx at w1 and y at x2 are heterogeneous extended simples. It is correct to say that some things compose another if the former objects collectively occupy the same region as the latter at duplicate worlds. Within a world, the only case of composition is when an object composes itself. Non-trivial composition is always transworld.

Cotnoir (2013a) has argued that this nihilistic interpretation of mereology can also be used to paraphrase all talk of ordinary material objects. For example, the sentence "The table is brown" can be paraphrased similarly. If there are no tables in the actual world, but merely simples arranged table-wise, then there is a P-duplicate world to the actual world in which there really is a table with the property of being brown. Therefore, when we correctly say that 'the table is brown', we say something about a specific region of our world that would be literally true at the same region at the relevant duplicate world. In other words, *"**INSTANTIATION** 'x is F at r' is correct at w0 iff there is a world w1 P-duplicating w0 in which and r ⊆ |x|w1 and an F-trope exists at r"* (p.236). This gives us an account of what it is for there to be 'some simples arranged table-wise': simples are arranged table-wise, if they are P-counterparts to a table.

Nevertheless, I think the counterpart strategy faces some problems. These problems can be solved, if we endorse my view. First, the counterpart strategy presupposes certain ontological views, and so, it can be unappealing to people that endorse opposite views. Cotnoir has assumed that substantivalism about space-time is true and heterogeneous extended simples are possible. It seems to me that his account cannot be modified to accommodate relationalism about space-time

or point-sized particles. Whether this sort of nihilism is plausible seems to rely on the truth of other ontological views. However, nihilism can be true, even in a world that particles are point-sized and space-time is relational. Therefore, I think it is better to prefer an account that explains why ordinary sentences about higher-level objects are true without presupposing a specific view about the nature of simples and the space-time. As it was shown in the previous section, my view can do this.

Second, talk about possible worlds is helpful and illuminating, but we may still prefer an account that focuses on what is happening in the actual world. A nihilist account will be more explanatory if it explains the relation between our ordinary claims and the actual world. My view can do this because it mentions what are the actual truthmakers of our claims and when certain words and sentences can be used to describe truly the actual world. Our claims are about the actual world, and so, we need to talk about the actual world in order to really explain their reasonableness. I agree with Heil (1998, p.153) that *"modal claims, like any other claims about the world, require truth-makers".* True claims about necessity, dependence, and counterfactual assertions are made true by intrinsic features of our world. Cotnoir's account seems plausible and explanatory to me, but I think it is more explanatory to talk about the actual truthmakers of our sentences.

### 4.11. Explanation of Mereological Talk

Following Cotnoir (2013a), I consider it important to explain both existential claims about composite objects and mereological talk about them. This will make my view more plausible and explanatory. So far, I described truth-conditions of simple existential claims (e.g., 'there are tables'), cardinality comparisons, and statements containing plural predicates that seem to be collectively satisfied by some composite material objects. But what about mereological talk? I think my view can be extended to accommodate this talk too.

Consider the sentence 'x is part of y'. Let's assume that both x and y are higher-level objects for ease of exposition. When this sentence is true can be described as follows: "In some space-time points, simples arranged x-wise exist fundamentally, and hence, the word 'x' is satisfied by them. In some space-time points, simples arranged y-wise exist fundamentally, and hence, the word 'y' is satisfied by them. The simples arranged x-wise are located at the same space-

time points as the simples arranged y-wise or at some of them. That is why it is true to say that ‘x is part of y’”.

Similar truth-conditions can be described for the sentence ‘xx compose y’. Let’s assume that both xx and y are higher-level objects for ease of exposition. When this sentence is true can be described as follows: “In some space-time points zz, simples arranged xx-wise and y-wise exist fundamentally, and hence, the predicates ‘xx’ and ‘y’ are satisfied by them. Each x is a smaller arrangement than the y. That is why it is true to say that ‘xx compose y’”.

## 4.12. Conclusion

A compositional nihilist may be challenged to explain why ordinary sentences about higher-level objects are true if compositional nihilism is true. Someone may use van Inwagen’s paraphrase strategy to give such an explanation. However, Uzquiano has argued that there are certain sentences about higher-level objects that cannot be paraphrased by mentioning only simples and their arrangements. I argued that a nihilist can explain why sentences about complex objects are true if they advocate a particular truthmaker theory that combines resources from Cameron’s truthmaker theory and van Inwagen’s paraphrase strategy. Even though certain sentences about higher-level objects cannot be paraphrased, we can describe their nihilist-friendly truth-conditions.

## 5. Intuition of Mind-Brain Distinctness: Why Do We Have It?

### 5.1. Introduction

Another way to argue against multi-descriptional physicalism is to appeal to our dualist intuitions. Papineau (1993a, 1993b, 2002, 2007, 2011) has noticed that there is a strong intuition that conscious experiences and brain states are completely different, and this explains why we may not feel inclined to identify phenomenal properties with physical properties. This intuition remains, even if we are materialists about the mind and argue against dualist arguments (e.g., the explanatory gap argument, the conceivability argument, the knowledge argument). This explains why even if we believe that materialism[108] is true, we still have doubts about its truth.

If we can explain why we have this intuition and why this intuition is not a reason to reject physicalism, this will help us to defend physicalism. Papineau argued that the intuition of mind-brain distinctness is caused by an antipathetic fallacy (caused by a difference between physical and phenomenal concepts), and as a result, we should not consider it as a reason to be sceptical about physicalism (section 5.2). For Papineau, this intuition arises because when we think about an experience in phenomenal terms, we activate a version of this experience, but this is not the case when we think about this experience in physical terms. This leads us to doubt that the referent of the phenomenal term and the referent of the physical term are the same entity (this is the antipathetic fallacy). Nevertheless, this difference is not a good reason to reject physicalism as it is just a conceptual difference.

I will argue that Papineau's attempt to explain the intuition of mind-brain distinctness fails. Possessing our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness (section 5.3 and 5.6). Historical scientific examples are evidence for the truth of this (section 5.4). Another reason to believe this is the possibility of aliens that have physicalist intuitions because of their different nature and nurture but have the same phenomenal and physical concepts as us (subsection 5.5.2). I will argue that the intuition of mind-brain distinctness is an instance of a more general phenomenon. We may be disposed to give non-physical explanations

[108] I use 'materialism' and 'physicalism' interchangeably.

of phenomena that cannot be (completely) explained in physical terms at the moment. This may be the result of both our nature (evolutionary influences) and nurture (culture, history, religion, society) (subsection 5.5.1). If our intuitions are caused by these dispositions, then we cannot be sure that our nature and nurture pushed us towards having intuitions that track metaphysical truths or we were led to these intuitions as a matter of chance. Therefore, we should refrain from relying on our dualist intuitions to develop metaphysical theories. I will also argue that humans in the future may have physicalist intuitions because their nature and nurture are different from ours.

## 5.2. Intuition of Mind-Brain Distinctness and the Antipathetic Fallacy – Papineau

Papineau (1993a, 1993b, 2002) has noticed that despite believing that materialism is true, despite all the arguments for materialism (e.g., the causal-exclusion argument) and all the objections to dualist arguments (the knowledge argument, the conceivability argument, the explanatory gap argument), an intuition continues to object to mind-brain identity.

Papineau (1993a) has described the intuition of mind-brain distinctness as a certain kind of feeling. *"I expect that, despite everything I have said so far, many readers will feel strongly that it is a mistake to conclude that 'first-person' and 'third-person' concepts of experience refer to the same things. For my arguments* […] *will have done nothing to shake the widespread intuition that conscious experiences and brain states are as different as anything can be"* (p.175, underline added).

This intuition was also described as a seeming (Papineau, 2002)[109]. *"For it certainly doesn't seem as if conscious properties are identical to brain properties. Property identity claims involving phenomenal and material concepts are intuitively quite different from ordinary identity claims. There is nothing puzzling about the Morning Star being the Evening Star, or Cicero being Tully, or water being $H_2O$. By contrast, there is something very counter-intuitive about the phenomenal-material identity claims advocated by materialists. When materialists urge that seeing red (and here you must imagine the redness) is identical to some material brain property, it strikes many people that this must be wrong"* (p.74, underline added).

[109] Papineau (2011, p.13) described it as a psychological attitude.

*"A successful materialism* [...] *needs to show why the conscious mind and the material brain should seem so different to us, if they are really the same"* (Papineau, 2002, p.74, underline added).

*"How can pain (which hurts so) possibly be the same thing as insensate molecules rushing around in nerve fibres? Or, to repeat Colin McGinn's question, how can our vivid technicolour phenomenology (our experience of reds and purples and so on) possibly be the same as cellular activity in grey matter?"* (Papineau, 2002, p.161). Phenomenal and physical properties seem completely different. This intuitive resistance to materialism about the mind is called by Papineau 'intuition of mind-brain distinctness'.

This intuition prevents us from fully accepting materialism. We may believe that materialism is true, but this intuition stops us from really believing that the mind and brain are identical. Papineau (2003) has noticed that we *"can fully believe something at a theoretical level, yet disbelieve it at some more primitive level"* (p.14). He has suggested that the intuition of mind-brain distinctness is an example of this. Materialists believe at a theoretical level that the mind and the brain are identical, but they remain in the grip of dualism at some more primitive level.

According to Papineau, the intuition of mind-brain distinctness does not discredit materialism because it can be explained why it is mistaken. For Papineau (1993a, 1993b, 2002), the intuition of mind-brain distinctness is explained by a difference at the conceptual level. *"[W]e have two very different ways of thinking about conscious properties, as either phenomenal or material"* (Papineau, 2002, p.164). It is qualitatively quite different to think about a feeling in phenomenal terms as a feeling and to think about it in material terms as a material state. When we think of conscious states as brain states, we think of them in a 'third person' way. However, when we think of conscious states as conscious states, we represent conscious states from the 'first person' perspective.

The intuition of mind-brain distinctness is explained by a special feature of phenomenal concepts: their uses resemble the conscious properties being referred to. Phenomenal concepts can be used imaginatively or introspectively. *"Both these exercises of phenomenal concepts have the unusual feature that we use versions of the experiences being referred to in the act of referring to them. When we deploy a phenomenal concept imaginatively, we activate a 'faint copy' of the experience referred to. And when we deploy a phenomenal concept introspectively, we amplify the*

*experience referred to into a 'vivid copy' of itself"* (Papineau, 2002, p.170). That is why exercising a phenomenal concept feels like having the experience itself. It shares the what-it's-likeness/phenomenology of the experience[110].

On the other hand, uses of material concepts do not resemble the conscious properties being referred to. Thinking about a feeling in material terms does not involve the feeling of this experience. For example, thinking about the activation of nociceptive-specific neurons does not in itself create any feeling like pain. Exercises of a material concept 'leave out' the experience at issue in the sense that they do not activate or involve any version of this experience.

Still, it is wrong to conclude from this that in exercising material concepts, we do not think about the experiences themselves. This is what Papineau (1993a, 1993b, 2002) has called the 'antipathetic fallacy' (a species of use-mention fallacy). When we commit this fallacy, we refuse to recognise that conscious feelings inhere in certain parts of nature (that is, the brains of conscious beings). It is true to say that unlike phenomenal concepts, material concepts do not *use* the experiences in question (i.e., they do not activate them). Still, it does not follow that material concepts fail to *mention* them. Even though they do not activate the feelings, they can still refer to them.

Most concepts do not use or involve the things they refer to. For instance, when I think of being rich, this does not in any sense make me rich. *"In using the states they mention, phenomenal concepts are very much the exception. So we shouldn't conclude on this account that material concepts, which work in the normal way of most concepts, in not using the states they mention, fail to refer to those states"* (Papineau, 2002, p. 171).

Papineau (1993a, 1993b, 2002) has claimed that many people believe that phenomenal states are non-physical because they commit the antipathetic fallacy. Presenting this fallacy

[110] Later, Papineau (2007) has changed slightly his view and admitted that we can think about a phenomenal experience in phenomenal terms without having the relevant experience or imaginatively recreate it. This can be done by using a phenomenally derived concept. When we use phenomenal concepts, we have the relevant experience or imaginatively recreate it. However, when we use phenomenally derived concepts, we do not have the experience itself, nor do we imaginatively recreate it. For example, someone can use a phenomenally derived concept by thinking this: *"I am not now having that experience (nor re-creating it in my imagination)"* (p.112-113). We can use a phenomenally derived concept, iff we had the relevant experience earlier and obtained the relevant phenomenal concept because of that. Still, the intuition of distinctness arises only when we are thinking with phenomenal concepts that use the states they mention.

explains why, contrary to other cases of identity, the intuition of mind-brain distinctness in the mind-body case remains no matter the amount of evidence provided that there is only one referent. Our intuitions can be explained away as due to the antipathetic fallacy.

Papineau (2011) has noticed that a different explanation for the intuition of distinctness is that it is caused by our ingrained dualist culture. Christian theology, a main part of the Western culture, claims that dualism is true, and until recently, scientists claimed this too. However, it can be argued that our dualist intuitions would disappear if our culture endorsed physicalism entirely.

Nonetheless, Papineau (2011) has believed that this is not the correct explanation: the intuition would remain, even if the culture changed completely. This is so because *"there is something more structural pushing us toward dualism, some feature of our cognitive architecture that forces the intuition of dualism on us"* (p.15). My objection to Papineau could be seen as a reason to doubt this.

### 5.3. Objection to Papineau

In this and the next sections, I will argue that Papineau's explanation of the intuition of mind-brain distinctness fails. I believe so because of the following argument:

a. Humans in the future and aliens may possess our physical and phenomenal concepts, consider the ontological status of phenomenal and physical properties, and have physicalist intuitions about the mind.
b. If (a) is true, then possessing our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness.
c. If possessing our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness, then mentioning an antipathetic fallacy does not explain why we have an intuition of mind-brain distinctness.

Motivating this argument will be the purpose of the rest of this chapter. I will give three reasons for believing premise (a). First, Pauen (2011) and Stoljar (2006) have presented historical

examples that show that some of our metaphysical intuitions are historically contingent. This is a reason to believe that the intuition of mind-brain distinctness is also contingent (see section 5.4). Second, it is conceivable that if our nature and nurture change, our dispositions to explain things in a certain way will change, and this will influence our intuitions (see section 5.5). Third, it is conceivable that aliens possess the same concepts as us, consider the ontological status of phenomenal and physical properties, but they do not have dualist intuitions[111] (see subsection 5.5.2)

The second and the third reason are supported by the possibility of a certain kind of causal chain: nature and nurture influence the dispositions of a species and these dispositions influence their intuitions[112]. Some of these dispositions can be dispositions to give dualist explanations when we do not have another (complete) explanation available. This causal chain will be explained in detail when I describe the second and third reasons to believe premise (a). I will discuss premise (b) and the conclusion in section 5.6.

## 5.4. Historical Scientific Examples and Historical Contingency of Intuitions

The first reason to believe premise (a) ('Humans in the future and aliens may possess our physical and phenomenal concepts, consider the ontological status of phenomenal and physical properties, and have physicalist intuitions about the mind') is the historical examples that show that other metaphysical intuitions are contingent. These examples give us a reason to believe that the intuition of mind-brain distinctness is also historically contingent: it may change in the future.

Pauen (2011) has given us reasons to believe that this is the case. For Pauen (2011), the intuition of distinctness will disappear in the future. Other intuitions of mind-brain distinctness have changed during the history of mind and brain research because of scientific development.

[111] Objection: If you accept that conceivability entails possibility, then you will be in trouble with some classic dualist arguments, e.g., the conceivability argument.
Reply: I do not think so. I do not think that zombies are conceivable. They seem conceivable because we lack relevant physical knowledge. If we knew the relevant physical facts, zombies would not seem conceivable. The knowledge we lack is about the qualitative character of physical properties (physical properties are both qualitative and dispositional, see Heil, 2003).

[112] I assume that what metaphysical intuitions we have partially depends on what dispositions we have. I will give examples of how different dispositions can cause different intuitions (physicalist aliens and dualist humans). I think these examples give us a reason to believe that our metaphysical intuitions depend on our dispositions.

The intuition that the mental and the physical are fundamentally different had various forms through history (e.g., body and soul, animal spirits, vitalism).

For example, Pauen (2011) has noticed that many cultures had the intuition that the mind and the body are fundamentally different. This was the case because of the difference between mental experience and the experience of bodily states. This was also the case because what people knew about the body could not provide a plausible explanation for mental experience. Therefore, they were explaining mental properties by referring to something different from the body or the brain, namely the soul.

According to Pauen (2011), while traditionally all the mental and vital functions were considered non-physical, nowadays, only phenomenal qualities seem to be inaccessible for scientific explanation. The range of physicalist explanations gets extended more and more as science moves forward. Therefore, it seems very possible that in the future, phenomenal experiences will be scientifically explained too.

Pauen (2011) has noticed that the intuition of distinctness is similar to the old ones, and so, the current intuition of distinctness might change too[113]. During the development of science, whenever there was no available explanation of a certain phenomenon, it was assumed that the phenomenon cannot be physically explained in principle. However, intuitions change when relevantly similar phenomena are explained, such that a solution to the problem in question can be imagined, even if the phenomenon cannot be precisely explained yet. In other words, dualist intuitions disappear, when a physical explanation seems possible *in principle*.

*"Of course, it occurs every now and then that what appears to be two distinct phenomena turns out to be just one. The apparent difference between the evening star and the morning star is probably the best example. But normally it's a good guess that what appears as two different phenomena actually are two different objects — unless we have a convincing story to tell why this is not so. And given that there was no such story available throughout almost the entire history of science, it is not very surprising that the intuition of distinctness according to which mental states*

[113] It could be argued that the intuition of mind-brain distinctness is very different from older intuitions. The antipathetic fallacy shows why this is the case. The difference between the physical and the phenomenal concepts makes this intuition different from the others. This intuition cannot change in the future because of this difference. I will object to this by describing the possibility of physicalist aliens and humans in section 5.5.

*are distinct from brain states could develop. If this is true, if the emergence of the intuition of distinctness depends, at least to some extent, on the availability of certain scientific explanations concerning the relation between mind and brain, we should expect a significant development of the intuition throughout the history of science"* (Pauen, 2011, p.83).

I agree with Pauen. What my account adds is the explanation of why during our history, we were disposed to give dualist explanations of phenomena that could not be explained in any other way. These dispositions are the result of our nature and nurture.

The current dualist explanations of consciousness are just an example of these dispositions. We do not have any similar intuition concerning propositional attitudes because current neuroscience gives a well-developed explanation of them. Even though it is not a complete explanation, we can see in principle how such an explanation might go.

Another philosopher that gave historical examples that show that our metaphysical intuitions are historically contingent is Stoljar (2006). Stoljar (2006, p.135) has noticed that while nowadays, only psychological properties are claimed to be non-physical, in earlier centuries, chemical and biological properties presented difficulties that were interpreted as analogous to those presented by psychological properties. This led people to consider them non-physical.

Stoljar (2006) has interpreted Broad (1925) as suggesting a knowledge argument against the identification of chemical properties with physical properties. The argument was the following:

1. *"It is possible for a logically omniscient and conceptually sophisticated person to know all the nonchemical truths about the world and to learn on the basis of experience the chemical truths"* (Stoljar, 2006, p. 136).
2. If premise (1) is true, then physicalism is false.
3. Therefore, physicalism is false.

Premise (1) is supported by relevant thought experiments. According to this premise, knowing all the nonchemical truths about the world is not sufficient to learn all the chemical truths about the world. Premise (2) is supported by the claim that *"physicalism about chemistry entails that someone who knew all the nonchemical truths of the world would be in a position to know all the truths"* (Stoljar, 2006, p.136).

However, Stoljar (2006) has believed that premise (1) is false. Broad was writing at a time when the quantum mechanical theory of chemical bonding was unknown or at least undiscussed. As a result, he did not realise that chemical facts follow directly from physical facts. He was ignorant of a type of nonchemical truth relevant to the nature of chemistry and that is why he considered premise (1) plausible. After gaining relevant physical knowledge, there were good reasons to consider the above knowledge argument unsound.

According to Stoljar (2006), historical examples, like Broad's knowledge argument about chemical properties, make it plausible to suppose that we are ignorant of a type of physical truth relevant to the nature of experience. I agree with that and also think that these historical examples make it plausible to suppose that when we do not have a (complete) explanation of a phenomenon, we tend to give a non-physical explanation of it. This can result in non-physical intuitions of distinctness[114].

Even though Stoljar was talking about the knowledge argument, we can imagine people having an intuition of distinctness and this intuition disappearing after physical discoveries. This shows that our metaphysical intuitions are historically/culturally contingent. They can change when we gain new knowledge.

The example of chemical properties is evidence that when we do not know certain physical truths about a phenomenon, we are disposed to give non-physical explanations and these dispositions create dualist intuitions. We were not disposed to consider an alternative possibility as actual, namely that we were not aware of a certain kind of physical truth.

[114] Vitalism was another non-physical view that was suggested when we were ignorant of a type of physical truth. relevant to the nature of life (see Papineau, 1993a, p.181-182). Nineteenth century thinkers postulated the existence of something non-physical to explain why some systems are alive. It appeared to them that there was no physical explanation of why some systems are alive and why others are not. It was supposed that systems are alive because of the presence of a special substance, a vital spirit that accounted for those features of living systems, such as generation and development.

However, nowadays, people know that systems are alive because they have a certain kind of physical organisation that fosters survival and reproduction. There is not a good reason to claim that vital spirits exist.

It seems likely to me that people postulated a non-physical vital spirit because of their dualist dispositions and culture. Given our ignorance of physical truths, we tend to give dualist explanations, and these dispositions and explanations can lead us to have intuitions of distinctness.

This example also gives support to the claim that our intuitions are historically/culturally contingent. We can imagine people having the intuition that being alive involves something non-physical and this intuition disappearing after scientific discoveries.

Religious dualist beliefs might have partially caused dispositions to give dualist explanations when there was no complete physical explanation available. This might have led to dispositions to give dualist explanations in chemistry, and these dispositions might have also encouraged giving dualist explanations in other domains.

## 5.5. Humans, Aliens and Intuitions

In what follows, I will describe how our intuitions might have been created and what intuitions aliens and future humans with our concepts may have. While we have dualist intuitions about the mind, aliens may have physicalist intuitions. This undermines the persuasiveness of our intuition of mind-brain distinctness. If it is possible that different species find different metaphysical claims intuitively true and we do not have a good reason to believe that our intuitions reveal metaphysical truths but theirs do not, then we should not rely on these intuitions to develop metaphysical theories. The conceivability of aliens with our concepts but with physicalist intuitions gives us a reason to believe that future humans with our concepts and physicalist intuitions are also conceivable. These two conceivabilities (physicalist aliens and physicalist future humans) support premise a ('Humans in the future and aliens may possess our physical and phenomenal concepts, consider the ontological status of phenomenal and physical properties, and have physicalist intuitions about the mind').

### 5.5.1. Dualist Intuitions of Humans – Caused by Nature and Nurture

I will argue that nature and nurture cause us to have certain dispositions. A kind of dispositions may be dispositions to explain phenomena in a certain way when we do not have a (complete) explanation available. Humans may be disposed to give dualist explanations in such situations: we do not have a complete physical explanation available, and we cannot see how such an explanation can go, so our dispositions cause us to give dualist explanations of the mysterious phenomenon. Those dispositions can also cause us to have dualist intuitions: we cannot imagine a physicalist explanation of a phenomenon, and as a result, this phenomenon seems distinct from physical phenomena.

Stoljar (2006) has argued that even though a physical property P is systematically and perfectly correlated with a phenomenal property Q, we may be inclined to think that the relation between P and Q is contingent because we are ignorant of a type of experience-relevant physical truth. If we knew this type of truth, the relation between P and Q would not seem contingent anymore. Instead, it would seem necessary.

Still, there is a persisting intuition that even if we knew everything about the brain, the P → Q relation would still seem contingent. In the future, we may be able to identify the mechanism that produces Q and describe under what conditions it is happening. Nevertheless, a dualist may insist that it is metaphysically possible that this mechanism functions as it normally does, but it does not produce any phenomenal experience.

I believe that the reason that the intuition of mind-brain distinctness does not go away is our dispositions to give non-physical explanations of phenomena that cannot be (completely) explained in physical terms *at that moment*. This suggestion contrasts with Papineau's idea that the disposition to express dualist views about the mind is explained by the intuition of mind-brain distinctness. Instead, I claim that the direction of explanation goes the opposite way.

During our history, we gave non-physical explanations of phenomena that we did not have any other detailed theory about them. We tended to give non-physical explanations of phenomena that are considered physical nowadays. For instance, we were ignorant of chemical truths and postulated the existence of alchemical spirits. We could not explain well our vital functions by using physical terms and we gave a non-physical explanation (vital force of vitalism).

I will argue that these non-physical dispositions were and are caused by both our nature and our nurture. Concerning our nature, it is very possible that there were evolutionary forces that made people that explained, even metaphysically incorrectly, their environment more likely to survive than people that did not give any such explanation. This might have created dualist dispositions and sustained them in the next generations. Concerning our nurture, during our history, we tended to give dualist explanations of phenomena, and this seems to cause us to extend our dualist explanations to other domains as we were familiar with this kind of explanation and they were the only available (complete) accounts. Both nature and nurture cause and sustain our dispositions to give non-physical explanations.

5.5.1.1. Nature

Let's start with our nature. Street (2006) has noticed that according to evolutionary psychology (a subfield of evolutionary biology), in some cases, human cognitive traits can be explained by a Darwinian theory. For example, the human tendencies to value certain things (e.g., the survival of one's children), may be susceptible to evolutionary explanation. Humans that had certain moral values had more chances to survive and reproduce and that is why these values are prominent in our society. This can be the case even if our tendencies are also partially the result of other complex processes that produced them (e.g., social, cultural, and historical factors).

As evolutionary forces influenced the content of our evaluative moral judgements, so they also influenced our dispositions and intuitions. Different dispositions and intuitions can have different effects on a creature's chances of survival and reproduction. As a result, there might have been selective pressure in the direction of having certain dispositions and intuitions that tended to promote survival and reproduction more effectively than the alternative dispositions and intuitions.

It seems to me that people that had certain non-physical dispositions and intuitions had better chances of survival and thus reproduction[115]. Humans' desire for understanding their environment, especially understanding how something important for their survival works, might have led them to give explanations in every case despite the lack of evidence for these explanations. People have given explanations of phenomena that could put them in danger, they have done something to face them, and then, they have felt more confident. More confidence leads to more actions that can potentially lead to the survival of someone[116]. This might have led people with these dispositions to survive more than other groups. Fear of animals or the unknown might have led to fear to go out there and explore. For instance, if someone thinks he has the blessings of a god, he may not be afraid to go out there and risk his life to find food or other things essential for survival. However, someone without this confidence may be hesitant to go outside or very far away from his home.

[115] Not all non-physical dispositions and intuitions are beneficial for our survival and reproduction. If someone did not search for food and thought that they can survive by just praying to the gods to give them food, this person would obviously not be the best survivor. But I will argue that certain kinds of non-physical dispositions and intuitions might have been beneficial.

[116] More confidence could also lead to more actions that can lead to death. I claim here that a certain kind of cautious confidence could have led to better chances of survival.

As a result, there might have been selective pressure in the direction of having the disposition to give non-physical explanations of phenomena that could not be physically explained at that time. This led to the development of non-physical intuitions.

This specific evolutionary story may not be true. Still, it shows how our intuitions concerning metaphysical truths might have been influenced by evolution. Selective pressures could also lead to physicalist intuitions. We will see an example of this in section 5.5.2 when we consider the possibility of physicalist aliens.

A relevant question is whether having correct intuitions about metaphysical truths increases our chances of survival and/or reproduction. If they do, then we have a good reason to consider them as good guides to metaphysical truths. If our intuitions are good guides to metaphysical truths, we have a good reason to trust them when we develop metaphysical theories. But if they are not good guides to metaphysical truth, we should seek other ways to develop our metaphysical theories.

If what I have said so far is true, dualists face a dilemma[117]. Consider someone who claims that the intuition of mind-brain distinctness is a reason to be sceptical about physicalism. This person needs to take a position on what relation there is, if any, between the selective forces that have (at least partially) shaped the intuitions we have, on the one hand, and the metaphysical truths, on the other hand. Did selective pressures push towards having intuitions that reveal metaphysical truths? Dualists may either assert or deny a relation. On the one hand, if they deny a relation, it will be unjustified to believe that Darwinian pressures, as a matter of chance, have happened to push us towards having intuitions that reveal metaphysical truths. As we will see in more detail in section 5.5.2, selective pressure might have led other beings to have physicalist intuitions about the mind and there is no way to decide which intuitions are true just by examining them. On the other hand, if they assert a relation between evolutionary influences on our intuitions and metaphysical truths, it seems unjustified to assume that selective pressures pushed towards having intuitions that reveal metaphysical truths. It is unclear why exactly these intuitions about metaphysical truths helped us to survive and reproduce. While understanding physical truths led us to understand better our surroundings and this helped us to survive, nothing similar can be said about metaphysical truths.

[117] This paragraph is inspired by Street's (2006) claims about a similar dilemma that value realists face.

For example, obviously, understanding how a lion interacts with its environment and how to use materials to create tools helped us to survive. Having intuitions about what can hurt us (e.g., heights, fire) helped us to survive too. However, it is unclear how having an intuition that the mind and the brain are distinct helped us in a similar way.

The argument can be summarised as follows:

1. Evolution influenced our dispositions and intuitions.
2. We do not have a good reason to believe that selective pressures pushed us towards having intuitions that reveal metaphysical truths as it does not seem that these intuitions helped us to survive and reproduce.
3. If selective pressures did not push towards having intuitions that reveal metaphysical truths, then we do not have any good reason to believe that as a matter of chance, we have intuitions that reveal metaphysical truths.
4. Therefore, it is uncertain whether our intuitions reveal metaphysical truths.
5. Therefore, we should not rely on our metaphysical intuitions to form metaphysical theories.

We can conclude that our metaphysical intuitions are not good guides to the truth. Therefore, the intuition of mind-brain distinctness cannot be used to argue against physicalism. As we will see in the next section, examining our nurture also gives us a reason to distrust our metaphysical intuitions.

#### 5.5.1.2. Nurture

While our nature was the cause of dualist dispositions and selective pressure pushed us towards them, nurture helped to sustain them and apply them to new domains. In this subsection, I will argue that there is a positive message of distinctness coming through our culture, religion, society, and history, and this message may make us disposed to give dualist explanations when we do not have a different (complete) explanation available. I will also argue that these dualist dispositions cause us to have dualist intuitions that are historically contingent. Additionally, I will argue that the influence of our culture had nothing to do with a truth-conducive or reliable process to form intuitions, and thus, we should not rely on these intuitions to develop metaphysical theories.

Humans are disposed to consider the mind as something non-physical. History, society, religion, and culture partially caused this. Consider the Western world and the influence of Abrahamic religions through the centuries. Religious education and worship involve learning about the non-physicality of the mind and its existence after death. Even if a person is not religious, dualist intuitions are still created as dualist ideas can be found almost everywhere in our society (e.g., other people's beliefs, paintings, literature, movies). This dualist atmosphere partially creates dualist dispositions and the intuition of mind-brain distinctness.

If everyone in our society becomes a physicalist about the mind, we should expect a slow change of intuitions. The intuitions of mind-brain distinctness are well integrated into our minds, so they will not change instantly. But when new generations of people are born without any dualist influence, the intuitions will change gradually.

Imagine a person that was born in a society that passionately supports physicalism. Any dualist view is ridiculed and reasons to be a physicalist are shared all the time. Whenever people do not have a complete explanation of something, they give a physicalist explanation anyway. It seems very likely that a person born in this society will not have an intuition of mind-brain distinctness, despite not having a complete neuroscientific explanation of our mind.

Even though such a person may not be completely rational because they do not entertain the dualist hypothesis with an open mind, considering this scenario shows that having our physical and phenomenal concepts and considering the ontological status of physical and phenomenal properties are not sufficient for the creation of dualist intuitions.

In our society, we may have conflicting intuitions, but this does not refute my view. A passionate physicalist may have physicalist intuitions when they consider the causal-exclusion argument. However, it does not seem absurd to think that they still have dualist intuitions when they consider our incomplete neuroscientific knowledge.

The dualist intuitions are not caused by justified beliefs. They are not the result of an empirical investigation or philosophical argumentation. Dualist explanations was a way to explain our mind when we were ignorant of various physical truths. A reason must be given for trusting these intuitions.

A property dualist rejects the existence of a soul, but the tendency to give non-physical explanations and the notion of non-physical souls may still influence his view subconsciously. We may know that some beliefs are false, but they may still influence our theories subconsciously (e.g., as it is done with our Newtonian intuitions about physics). Sometimes we rely on old and refuted views to propose new ones. We prefer theories that are closer to our background assumptions and beliefs.

We do that in science too. We rely partially on old and refuted theories to build new ones. However, assuming scientific realism is true, this is not a problem because some of our old scientific claims are true or approximately true. Let's assume that this is not the case for religious beliefs concerning the existence of souls. These beliefs are false and not even close to the truth. There is not any good reason to believe in the existence of non-physical substances. Therefore, it is not a good idea to base our new beliefs on these old ones.

We stopped talking about alchemical spirits because better explanations of the phenomena were provided. However, it seems that even if neuroscience gives us a complete causal explanation of our neurological interactions, some people will still not be willing to identify physical properties with phenomenal properties. It will still seem that neurons and phenomenal experiences are completely different.

These intuitions seem to be stronger than in other cases where we had dualist intuitions. However, I think this does not reveal any deep truth about ontology. Instead, I believe that these intuitions are stronger just because of the way they were created. Dualist ideas are almost everywhere in our society. We engage with these ideas all the time. Religious, dualist beliefs are very crucial parts of some people's identity. Our culture and religion have many dualist aspects. As a result, a very strong intuition is caused and is stronger than other dualist intuitions. For example, discussion about alchemical spirits was never as ubiquitous in our society as discussion about the soul. So, the intuition that alchemical spirits are non-physical was not as strong as the one we have about conscious experiences. The difference between these intuitions is just a difference between how much they influence us. There is no need to assume an ontological difference too.

### 5.5.2. Physicalist Intuitions of Aliens and Humans

It seems conceivable and possible that aliens have physicalist intuitions, despite having the same physical and phenomenal concepts as us. These aliens may be disposed to give physical explanations or hope for a physical explanation of a phenomenon when they do not have a (complete) physical explanation available. As a result, these dispositions cause them to have physical intuitions about the mental. It seems to them that the mind cannot be something different from the brain. It seems to them that referring to brain states and their causal interactions is sufficient to explain why they have the mental lives they do. Because of the physicalist intuitions, aliens do not commit the antipathetic fallacy, even though they have the same phenomenal and physical concepts as us. The difference between using and not using versions of the mentioned experiences would not be enough to create dualist intuitions as they are disposed to give physical explanations.

There is nothing special with our dualist intuitions. It seems conceivable and possible that some aliens have different intuitions and formulate different metaphysical claims because of that. This can be the case even if they possess the same concepts as us. I do not think that we have any reason to believe that our intuitions are the ones that track metaphysical truths. This gives us a reason to doubt that we should rely on our dualist intuitions to develop metaphysical theories.

An alien species with a different nature and nurture could have physicalist intuitions about the mind. Imagine that the aliens' culture is strongly endorsing physicalism. These aliens adore nature and believe that science will explain the world completely in the future. They are disposed to give physical explanations, even for topics that they do not know very well. They were evolved to be disposed towards physical explanations as they helped them to survive. These dispositions encouraged them to value greatly the investigation of nature and gain knowledge that helped them to achieve their goals. They have physical intuitions about the mind because of these dispositions. They do not have a complete explanation of how their brain works, but they are very confident that future scientists will explain everything mental by investigating their brains. They use phenomenal concepts because they do not know the relevant physical descriptions. For them, the mind is undoubtedly identical to the brain. They have the same phenomenal concepts as we have, but this is not enough to create any dualist intuition.

Alternatively, it is possible that the abundance of resources in their environment made them love it and believe that this is all they need. As a result, they were giving physical explanations of what was going around them, even if they did not have all the relevant knowledge about a phenomenon. This led them to dispositions to give physical explanations. These dispositions caused physicalist intuitions (e.g., it seems wrong to them to believe that a phenomenon is non-physical).

Some alien philosophers might have considered dualists arguments similar to the ones that were presented by humans. They may have given similar objections to these arguments as humans did. Even though these arguments were offered, they did not suffice to create dualist intuitions as these aliens are not disposed to give dualist explanations.

This alien society seems conceivable. If conceivability (or a specific kind of it; see Chalmers 2002/2011) entails possibility, then we have a good reason to believe that this alien society is possible. If it is possible, it shows that possessing our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to have an intuition of mind-brain distinctness. It shows that different species may find different claims intuitive, despite sharing the same concepts. As a result, we should search for a different cause of this intuition. I argue that our dispositions to give dualist explanations cause our dualist intuitions.

The example of physicalist aliens presents clearly how some creatures can have physical intuitions, even though they use the same physical and phenomenal concepts as us. I think similar remarks can be said about humans that live in a physicalist society that does not include any sharing of dualist ideas in a positive manner. If a baby is born in a society that everybody is a physicalist and everybody expresses the idea that the mind and the brain are identical, then it seems possible that the baby will form physicalist intuitions about the mind when it grows up. She may be able to think about dualism, but she will consider it nonsense. She will not be tempted by the difference between physical and phenomenal concepts. She may consider dualist arguments and good objections against them, and then, she will still not have any dualist intuition.

If aliens with our physical and phenomenal concepts do not have an intuition of mind-brain distinctness, why not also humans in the future? I think our brain is flexible enough to make connections where there were not any before. If neuroscience provides us with a complete account of our inner life and our society becomes physicalist, we will not have an intuition of mind-brain

distinctness. The difference between phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties will not be sufficient to create dualist intuitions.

Considerations about physicalist aliens show that the intuition of mind-brain distinctness is an example of the many dualist intuitions that we had and have as a species. An alien species that has strong physicalist intuitions will form different beliefs concerning the metaphysical status of the mind. In both cases, these beliefs are formed because of the species' biology, society, and culture. They are reliable, only if they are formed by empirical investigation or philosophical argumentation. They are not formed this way, and hence, they are unreliable.

Molyneux (2011) has noticed that there are people and maybe other entities that claim to experience no sense of unease at identifying phenomenal properties with physical properties. That may be the case because the hard problem of consciousness never arose for them, or *"they have grown comfortable with not asking the question, or have got so used to the feelings of unease that accompany phenomeno-physical identifications that they no longer notice them"* (p.214). Still, Molyneux has claimed that this does not matter as the issue is why the hard problem of consciousness cannot be solved for anyone for whom it arises. Even if there are entities for whom it does not arise, this is not a solution to the problem.

I think that what I have said above explains why the hard problem of consciousness seems unsolvable, even though it is not. Our nature and nurture are the causes of the persisting dualist intuitions. As other dualist intuitions disappeared, these specific intuitions may disappear too, if everybody in our society became a physicalist and enough time is given for the physicalist intuitions to be formed.

## 5.6. Antipathetic Fallacy and its Insufficiency

Going back to the argument in section 5.3, we can now understand better the problem with Papineau's view. Let's examine again the argument:

a. Humans in the future and aliens may possess our physical and phenomenal concepts, consider the ontological status of phenomenal and physical properties, and have physicalist intuitions about the mind.
b. If (a) is true, then possessing our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness.
c. If possessing our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness, then mentioning an antipathetic fallacy does not explain why we have an intuition of mind-brain distinctness.

We have seen that scientific advancements have changed our metaphysical intuitions. I have argued that it is conceivable that aliens and future humans may possess the same physical and phenomenal concepts as us and consider the ontological status of phenomenal and physical properties, but they do not possess an intuition of mind-brain distinctness. These are reasons to believe premise (a).

This shows that, contrary to Papineau, the possession of our physical and phenomenal concepts and the consideration of the ontological status of phenomenal and physical properties are not sufficient for the creation of dualist intuitions. Therefore, the antipathetic fallacy cannot explain the creation and persistence of the intuition of mind-brain distinctness.

But suppose that Papineau changes his claim. He does not claim that possessing our physical and phenomenal concepts and considering the ontological status of phenomenal and physical properties are sufficient for the creation of dualist intuitions. Instead, he claims that they are sufficient for humans, but not for every possible species. Other creatures may have physicalist intuitions, even though they possess the same concepts as us and they do similar considerations as us. But this does not refute the possibility that humans have the intuition of mind-brain distinctness because of the antipathetic fallacy.

The issue with this claim is that I cannot think of a reason to believe that it is true. There are two candidates for being the cause of dualist intuitions: (a) our nature and nurture (which cause our dispositions to give dualist explanations when we do not have another (complete) explanation available) and (b) the antipathetic fallacy. It is unclear why we should choose (b). Maybe the best

way to go is to be agnostic about the issue. Both of the above candidates are plausible and more needs to be said to decide which one is the best explanation for the creation of dualist intuitions in humans.

Alternatively, it could be the case that there is overdetermination. Both our nature and nurture and the antipathetic fallacy cause the intuition of mind-brain distinctness. While in earlier papers, Papineau believed that the antipathetic fallacy is the only cause of the intuition of mind-brain distinctness, in recent papers, he has thought that there may be many causes for the intuition of dualism (Papineau, 2011, p.18-19). The intuition of dualism may be a product of multiple factors pushing in the same direction. Only empirical investigation can help us to find out the real causes of the dualist intuition.

This seems fine to me. Still, the aims of this paper can be to suggest one possible cause of the intuition of mind-brain distinctness and argue that this intuition is not as unavoidable as Papineau claimed. If some dualist intuitions are not overdetermined, and they are caused by our dispositions to give dualist explanations, then these intuitions can disappear.

## 5.7. Objections & Replies

In this section, I will consider some possible objections and I will reply to them.

Objection 1: Your argument looks like a general argument for scepticism about metaphysical intuitions. Is that what you want? Papineau and most other parties to this debate think that intuitions, in general, are fine. It is only in the mind-body case that there is a problem.

Reply 1: As long as we can give a possible example of how our intuitions were influenced by nature and/or nurture, and this influence does not seem truth-tracking, then we have a good reason to not rely on our metaphysical intuitions when we develop a metaphysical theory. I think this is fine. There are other ways to do metaphysics. When we develop metaphysical theories, we should follow methodological principles because they seem good guides to truth (see Kelly, 2004; Paul, 2012; Brenner, 2017). Empirical evidence also seems a good guide to truth. We should also choose a metaphysical theory that fulfils certain desiderata (e.g., DesideratumESCO, see chapter 4). Of course, we may doubt that methodological principles and empirical evidence are good

guides to truth, but I think that there are good reasons to believe that they are. For the sake of brevity, in this chapter, I assume that they are good guides (see the introduction of this thesis for some reasons to believe that simplicity is a good guide to truth).

Objection 2: Papineau or somebody else may deny that physicalist aliens are conceivable and hence, possible. He may insist that if aliens really have the same phenomenal concepts as us, they will have dualist intuitions. The conceptual difference between physical and phenomenal concepts will be sufficient to create dualist intuitions. So, there is a disagreement on what we find conceivable. Why should we accept what I claim to be conceivable instead of what Papineau is claiming to be conceivable?

Another way to put it is the following: since aliens have both phenomenal and physical concepts, couldn't Papineau argue that they do have dualist intuitions just like us? The difference would be that in their case such intuitions can be easily dispelled due to their dispositions to search for physical explanations, while we, humans, have a hard time getting rid of them even when we think we possess irrefutable arguments for dualism.

Reply 2: I can accept that it is conceivable that an alien species has dualist intuitions because of the antipathetic fallacy. But this does not exclude the conceivability of the aforementioned physicalist aliens. Given the detailed scenario that I have given concerning the aliens' nature and nurture, some specific reason must be given to deny the conceivability of these physicalist aliens. I cannot think of any. Therefore, I think that these aliens are conceivable. Papineau needs to deny that the aliens' dispositions to give physical explanations can influence their metaphysical intuitions. I do not see how he can motivate this denial.

I think both scenarios are conceivable. There is one conceivability in which aliens have dualist intuitions and dispel them easily, and there is another conceivability in which dualist intuitions do not arise at all. I do not think that we have a reason to reject the latter conceivability.

Objection 3: Here is a specific reason: if you stipulate that they have the same phenomenal concepts as us, then they will be inclined to commit the antipathetic fallacy and hence will have dualist intuitions. Not sure what more you could be looking for than that.

Reply 3: At this point, the plausibility of my view depends on how persuasive my thought experiments are. If they can persuade someone that possessing our phenomenal and physical

concepts and considering the ontological status of phenomenal and physical properties are not sufficient to create an intuition of mind-brain distinctness, my position holds. If my thought experiments are not persuasive, I do not have something else to say to persuade them.

Objection 4: You are suggesting huge empirical hypotheses. These may be refuted by future empirical evidence.

Reply 4: I accept that. I have only argued that these empirical hypotheses are plausible and likely to be true. It is still possible that future science will show that I am wrong. For example, evolutionary biologists may show that having correct intuitions about metaphysical truths helped us to survive and reproduce. Still, I think I have given some plausible reasons to believe that this is very unlikely to happen.

Objection 5: There are circumstances in which we think we understand the phenomena at hand though we actually are mistaken. Think about the phlogiston theory, which was used to explain combustion. Scientists did not actually understand the nature of burning, but they did not offer a nonphysical explanation. I worry that every false scientific theory we construct would be evidence against the thesis that we are disposed to offer non-physical explanations for phenomena we do not understand.

Reply 5: Both the antipathetic fallacy and my explanation cannot give conditions that are sufficient for the creation of dualist intuitions. I admit that this is an issue with my view, but it does not refute it. It shows that more work needs to be done to give sufficient conditions for the creation of dualist intuitions. Still, the various examples of non-physical explanations given through our history show that we have a strong disposition to give dualist explanations when we do not have another (complete) explanation available.

Usually, we give physicalist explanations when these explanations are complete. However, it is more likely to give a dualist explanation when we cannot even imagine a physicalist explanation. The issue is not so clear when we can give incomplete physicalist explanations. Sometimes we go for them, sometimes we prefer dualist explanations. More needs to be done to show why in certain cases we prefer dualist explanations.

Still, it was argued that the intuition of mind-brain distinctness is not as unique as Papineau thought. Even though I cannot provide sufficient conditions, we have to pay attention to this alternative cause of the intuition of mind-brain distinctness.

## 5.8. Conclusion

Papineau has explained the intuition of mind-brain distinctness by describing an antipathetic fallacy. I have argued that his explanation fails because (a) having our phenomenal and physical concepts and considering the ontological status of phenomenal and physical properties are not sufficient to have an intuition of mind-brain distinctness (it is possible that physicalist aliens and future humans, who possess the same phenomenal and physical concepts as us and consider the ontological status of phenomenal and physical properties, do not have dualist intuitions), (b) the intuition of mind-brain distinctness was and is created by our dispositions to give a dualist explanation of a phenomenon when we do not have other (complete) explanations available (these dispositions were created by our nature and nurture).

## 6. Arguments for Metaphysical Foundationalism

### 6.1. Introduction

So far, I merely assumed there is a fundamental[118] level of objects and properties. However, this is debated in the literature. In this chapter, I will consider two views: metaphysical foundationalism (all the chains of ontological dependence terminate in fundamental entities, or all derivative entities are fully grounded in fundamental entities) and metaphysical infinitism (there are infinite chains of grounding that lack a foundation). To begin with, I will explain the notion of 'grounding' by mentioning how it is used in the literature[119]. Then, I will talk about two arguments for the existence of a fundamental level. First, there is a foundationalist intuition that there must be a source of reality (Schaffer, 2009, 2010, 2016) or causal capacity (Trogdon, 2018) because a grounded entity inherits its reality or causal capacity from its ground. If infinitism was true, *"*[b]*eing would be infinitely deferred, never achieved"* (Schaffer, 2010, p.62). Second, Cameron (2008c) has argued that the methodological principle concerning unified explanations (other things being equal, it is better to give the same explanation of each phenomenon than to give different explanations of each phenomenon) favours foundationalism. I find the first argument unpersuasive as the source of reality or causal capacity of an infinite chain can be outside of it. This source can be the cause of the infinite chain. I will argue that the cause of a grounded object can also metaphysically explain why the grounded object is real and has causal capacity; nothing is left metaphysically unexplained if there is not a fundamental level. A vicious infinite regress can be avoided this way too. So, if this foundationalist argument is the only reason why somebody is

[118] Note that while in chapter 3, I used 'fundamental' to mean 'addition of being', in this chapter, I will use 'fundamental' to mean 'ungrounded'. I do so because this is how 'fundamental' is used in the literature that I will mention.
We could replace 'ungrounded' with 'metaphysically independent' without any problem, if grounding is the only metaphysical dependence relation. 'Metaphysical dependence' picks out the same relation as 'grounding', if grounding is the only metaphysical dependence relation.
If there are many metaphysical dependence relations and grounding is just one of them, then 'metaphysical dependence' picks out more relations than 'grounding'. As a result, it is a mistake to replace 'ungrounded' with 'metaphysically independent'.
Remember that I use 'metaphysical dependence' to talk about any metaphysical dependence relation.

[119] Even though I prefer the truthmaking relation instead of the grounding relation, I will talk about grounding in this chapter as the debate concerning metaphysical foundationalism and metaphysical infinitism is usually developed by mentioning grounding.

foundationalist, they should stop endorsing foundationalism. I consider the second argument better and argue that despite recent objections against it, a developed version of it, which considers various methodological principles, still holds. I will conclude that the best way to argue for metaphysical foundationalism is by mentioning methodological considerations.

## 6.2. Grounding

Metaphysical foundationalism and metaphysical infinitism are usually described by using the notion of 'grounding'. Therefore, it is helpful to examine the literature concerning grounding before going into more details about the two aforementioned views.

Accounts of grounding differ on what they take to be the relata of the grounding relation. While some have taken the relata to be sentences or facts (Fine, 2001, 2012; Rosen, 2010; Audi, 2012; Dasgupta, 2014a), Schaffer (2009, 2012, 2016) has taken the relata to be members of any two ontological categories. I will assume that Schaffer's account is the correct one and present it here. One motivation for following Schaffer's account is that it allows grounding to be between objects. As one of the issues in this thesis is to decide whether there is a fundamental level of objects, this is a very relevant account of grounding.

According to Schaffer (2009), what exists are the grounds/fundamental entities, grounding relations[120], and the grounded/derivative entities that are generated from fundamental entities through grounding relations. While there is an abundant roster of grounded entities, they are grounded on a sparse basis. *"[W]hatever is dependent is not fundamental, and thus no addition to the sparse basis"* (p.353). The grounded entities are an "ontological free lunch". They are no addition to being.

Schaffer (2009) has defined the notions of a fundamental entity (primary, independent, ground entity) and derivative entity (secondary, dependent, grounded entity) in terms of grounding

[120] Not everybody explains grounding as a relation. For Fine (2001, p.16; 2012, p.43) and Correia (2010), grounding is best regarded as a sentential operator that connects the sentences that state the ground to the sentence that states what is grounded. Dasgupta (2014a) also has taken grounding to be a sentential operator but claimed that a plurality of sentences can ground a plurality of sentences.

(ontological dependence, priority in nature). *"Fundamental: x is fundamental =$_{df}$ nothing grounds x* […]. *"Derivative: x is derivative =$_{df}$ something grounds x"* (p.373).

Schaffer (2010) has argued that the priority relations among actual concrete objects form a well-founded partial ordering. There is a partial ordering structure because priority relations are irreflexive, asymmetric, and transitive.[121][122] Schaffer (2010) has considered an example of this asymmetry. The proposition <Socrates exists> is true *because* Socrates exists and not vice versa. Truth depends on being and not vice versa. There is also a well-founded ordering: all priority chains terminate in something fundamental[123]. There are basic actual concrete objects because the priority chains terminate. If there was not a well-founded partial ordering, there would not be any basic concrete object.

For Schaffer (2009), the grounding relations are relations of abstraction. It may be the case that the concrete whole is always prior in nature to its abstracted aspects. The derivative entities are already latent within the fundamental entities, and that is why they are an ontological free lunch and no further additions. In other words, the grounding relations are just ways of separating out aspects that are implicitly present in the fundamental entities. 'Abstract' here means partial, incomplete, or fragmentary.

Schaffer (2016) has agreed with Bennett (2011a) that grounding is a superinternal relation. *"A superinternal relation is one such that the intrinsic nature of only one of the relata — or, better, one side of the relation — guarantees not only that the relation holds, but also that the other relatum(a) exists and has the intrinsic nature it does"* (Bennett, 2011a, p.32). For example,

[121] This is the most prominent way to understand grounding. Schaffer (2012, 2016) has changed his mind and given a contrastive treatment of grounding. The contrastive treatment involves viewing grounding not as a binary relation between two actual nonidentical entities but as a quaternary relation including a non-actual grounding contrast and a non-actual grounded contrast. E.g., *"The fact that φ rather than φ* grounds the fact that ψ rather than ψ*"* (Schaffer, 2012, p.130). Likewise, irreflexivity, asymmetry, and transitivity can be understood as holding between differences. We do not need to go into the details here as they will not affect my argument.

[122] All of these are controversial though. Jenkins (2011) has argued that grounding is reflexive. Barnes (2018) has argued that grounding is nonsymmetric. Bennett (2017) has responded to them and defended the claim that grounding relations are irreflexive and asymmetric. However, she has denied that grounding relations are transitive.

[123] How exactly we should define well-foundedness is controversial, see Rabin & Rabern, 2016; Dixon, 2016. I will present Dixon's view later in this chapter. Tahko (2018) has noticed that while some foundationalists, such as Schaffer, use a set-theoretic notion of well-foundedness, others do not (e.g., Rabin & Rabern, Dixon). I will not choose between one of these different notions as my arguments of this chapter do not rely on any specific notion of well-foundedness.

consider the physicalist claim that the physical facts ground the mental facts. It means that *"the physical facts make it the case that the mental facts are what they are, have the intrinsic natures they do. [...] Both the less fundamental facts and the relation that generates them derive from the more fundamental facts"* (p.33). The base, the first relatum(a), settles everything. *"Given the existence of the ground, nothing else has to happen for it to be a ground, for it to ground what it does. […] The grounding relation is already, automatically present"* (p.35).

Grounding can also be explained by comparing it with causation. Schaffer (2012, 2016) has argued that grounding is analogous to causation. Both of them are relations of generation, partial orders, and back explanation. Both causal and grounding relations can be described in similar ways by using terms such as "generation", "production", "making", and "dependence". Concerning partial ordering, both of these relations are irreflexive, asymmetric, and transitive binary relations. Concerning explanation, we can explain why something is the case by either giving a causal or grounding story[124].

Grounding has been considered as one among many building relations (Bennett, 2011b, 2017). For Bennett (2017, p. 32), *"three features are individually necessary and jointly sufficient for a relation to count as a building relation. All building relations are*

*i. directed, in that they are antisymmetric and irreflexive,*
*ii. necessitating, roughly in that builders necessitate what they build, and*
*iii. generative, in that the builders generate or produce what they build. Built entities exist or obtain because that which builds them does"*.

According to Bennet (2017), building relations form a unified family. When we talk about building, we quantify over the unified class of building relations. There is not a single very abstract building relation that is either more fundamental than the specific building relations or the only building relation. For example, grounding, causation, and composition were conceived as building relations. Considering building relations a unified family will be relevant in section 6.5.1.

[124] Schaffer (2012, 2016) has argued that both causal and grounding relations are best formalised via structural equation models which incorporate contrastive information (these models were firstly introduced to explain causation). He has claimed that structural equation models for grounding provide more structure than the mere partial ordering mentioned by Schaffer (2009). This account will be relevant in section 6.5.1; so, it will be briefly described there.

Especially relevant will be the aforementioned point (iii). Bennett (2017, p.184) has claimed that *"all building relations are generative in the sense that they license 'makes it the case' and 'in virtue of' talk"*. This is neutral on why such talk is licensed. It can be licensed because *"some relations are generative, and some are not; it's just primitive"* (p.184). Otherwise, it may be the case that *"there is no such relation, only the talk. It is just a matter of convention that certain relations license certain ways of talking"* (p.184). *"On the first approach, the world decides which relations count as building relations"* (p.185).

It seems to me that Schaffer (2009) has considered it a convention that certain relations license building talk. According to him, grounding is just a relation of abstraction and causation is better formalised via the structural equation models account of causation that involves correlations. Whether building talk is licenced by something metaphysical or is merely a matter of convention will be relevant in section 6.5.1. The objection to the foundationalist argument will be developed differently depending on how we explain building talk. But before we see this, metaphysical foundationalism and metaphysical infinitism will be explained.

## 6.3. Metaphysical Foundationalism and Metaphysical Infinitism

Grounding is used to describe two major views about the structure of the universe: metaphysical foundationalism and metaphysical infinitism[125]. While foundationalism says that all grounded entities are grounded in ungrounded entities, infinitism does not.

According to metaphysical foundationalism (Cameron, 2008c; Schaffer, 2009, 2010, 2016; Bennett, 2011a; Trogdon, 2017, 2018), there is a fundamental entity (priority monism) or there are several fundamental entities (priority pluralism). They are not grounded in anything else. More precisely, foundationalism claims that all grounded entities are directly or indirectly (i.e., by transitivity) grounded in ungrounded entities. For Schaffer (2009), all priority chains terminate. The ordering of grounding is well-founded: a priority chain is well-founded, iff it terminates in something fundamental/ungrounded. This ungrounded entity can also be called 'foundation'. A well-founded chain is not infinite at the fundamental end, but it may consist of infinite grounded entities. An entity is a foundation/fundamental, iff it is independent (i.e., it does not depend on

[125] Metaphysical coherentism (see Bliss, 2014) is another view, but it is out of the scope of this thesis.

anything else). Priority pluralism can be shown this way, where a grounded object is grounded in its grounds and arrows show grounding relations (e.g., $Y_1$ grounds X).

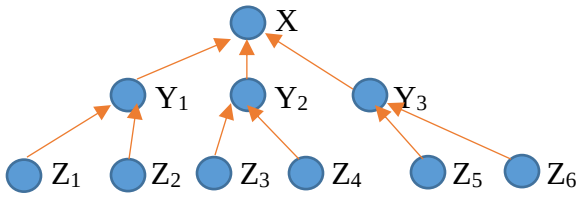


**Figure 1:** Priority Pluralism

X is a grounded object, Ys are its grounds, and Zs are the grounds of Ys.

On the contrary, metaphysical infinitism (Bohn, 2018; Morganti, 2009, 2014, 2015) claims that there are limitless chains of grounding that lack a foundation. An entity is grounded in another, the second one is grounded in another, and so on ad infinitum. The ordering of grounding is not well-founded as the priority chains do not terminate in something fundamental. The entities in question could be facts, objects, or other ontological categories. Concerning objects, different infinitist versions can be suggested. It is controversial whether grounding relations go from the larger to the smaller, or the opposite. An infinitist may claim that the world is gunky: every object is a whole that is grounded in its proper parts. There is no bottom level. There is an infinite descent of levels, and each further level is grounded in the former. Another infinitist option is to claim that the world is junky: every object is a proper part of something, and the former is grounded in the latter. Alternatively, an infinitist could believe both and argue that the world is hunky (both gunky and junky) (e.g., Bohn, 2018). A gunky infinitist world can be shown this way, where the small circles show that the chain continues ad infinitum:

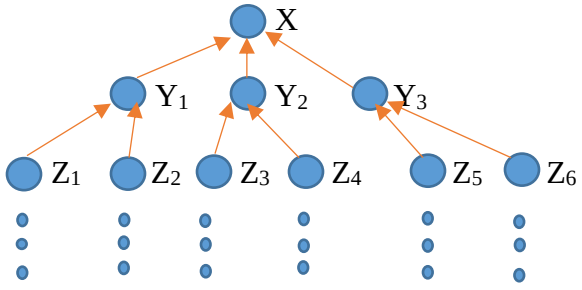


**Figure 2:** Gunky Infinitism

## 6.4. Arguments for Metaphysical Foundationalism

Different arguments have been provided to show that metaphysical foundationalism is true. It has been argued that there is a need for a source of reality or causal capacity to avoid a vicious infinite regress and only foundationalism can provide us with one (section 6.4.1). Furthermore, it has been argued that foundationalism is methodologically preferable (section 6.4.2). In what follows, I will present these two arguments. In later sections, I will argue that only the second argument works.

### 6.4.1. Source of Reality or Causal Capacity: Fundamental Objects

Cameron (2008c) has endorsed an intuition that there must be a fundamental layer of reality. This intuition arises when we consider the whole as grounded in its parts. According to this intuition, grounding cannot go on ad infinitum: all the grounded objects must be grounded in a fundamental level. If metaphysical infinitism was true, *"composition could never have got off the ground. If the existence of each complex object depends for its existence on the existence of the complex objects at the level below, and if we never reach a bottom level, then it is hard to see why there are any complex objects at all"* (p.6). If everything was grouded in something else, *"there would be no grounding to being: there would be no end to explanation when we try to explain why what there is exists"* (p.6-7). *"There must be a metaphysical ground, a realm of ontologically independent objects which provide the ultimate ontological basis for all the ontologically dependent entities"* (p.8).

Schaffer (2010) has also shared this intuition. *"If one thing exists only in virtue of another, then there must be something from which the reality of the derivative entities ultimately derives"* (p.37). If infinitism was true, *"[b]eing would be infinitely deferred, never achieved"* (p.62).

*"Grounding must be well-founded because a grounded entity inherits its reality from its grounds, and where there is inheritance there must be a source. One cannot be rich merely by having a limitless sequence of debtors, each borrowing from the one before. There must actually be a source of money somewhere."* (Schaffer, 2016, p.95).

It has been argued that if infinitism is true, there is a vicious regress; so, we should reject infinitism. For Schaffer (2016, p.95), *"a regress counts as vicious if and only if there is an endless chain of dependency with transference of the relevant status"*. This sort of transference leads to the need for a source. In the grounding case, there is such a transference of reality: the grounded entity exists in virtue of its grounds. *"That is why a source of reality is needed, in order for there to be anything to transfer"* (p.96).

Instead of talking about the property of being real to develop the foundationalist intuition, some foundationalists have developed this intuition by talking about causal powers (Heil, 2003; Trogdon, 2018). Heil (2003, p.19) has been sceptical about the possibility of a universe with no fundamental level. He has confessed ignorance as to how it is supposed to work given the dependence of higher levels on those below them: something, it seems, must ground the superstructure. If someone thinks that higher-level causal relations depend on lower-level causal relations, it is not clear that these could fail to bottom out. If the only unattenuated causal relations are those at the basic level, there had better be a basic level.

This kind of reasoning has been developed by Trogdon (2018). According to him, instead of focusing on the property of being real, we should focus on the property of having the capacity for causal activity (causal capacity for short). *"An entity has this property just in case it has causal powers, dispositions to enter into particular sorts of causal transactions"* (p.191).

My objection against Schaffer's and Trogdon's arguments, which I will develop later, does not depend on whether we talk about the source of reality or the source of causal capacity. So, I will remain neutral between these two options and will not mention Trogdon's objection against the foundationalist argument that mentions reality inheritance.

Trogdon (2018) has argued for causal foundationalism. *"Causal foundationalism: necessarily, any nonfundamental entity with causal capacity is fully grounded by fundamental entities"* (p.191). Causal foundationalism is true because the following three premises are true:

*"The causal inheritance premise: necessarily, if A is nonfundamental and has causal capacity then A inherits its causal capacity from whatever fully grounds it.*

*The source of causal capacity premise: necessarily, if A inherits its causal capacity then there are Δ that are a source of A's causal capacity (i.e. A inherits its causal capacity from Δ, and no entity among Δ inherits its causal capacity).*

*The causality/fundamentality premise: necessarily, if Δ are a source of A's causal capacity then the entities among Δ are fundamental and Δ fully ground A"* (p.192).

The causal inheritance premise is inspired by Kim's (2005) causal exclusion argument. This premise is supported by two principles. First, Kim's causal exclusion principle: no property instance has simultaneous full causes. Second, the causal closure of grounding principle: if a property instance has a full non-fundamental cause, then whatever fully grounds that cause is also a full cause of the property instance. The premise can be supported by considering an instance of φ that is both non-fundamental and fully causes an instance of property ψ. Following the causal closure of grounding, there is a property instance that fully grounds the φ-instance and fully causes the ψ-instance. It follows that the ψ-instance has two simultaneous full causes. Following the causal exclusion principle, no event has two simultaneous full causes. Therefore, by reductio, it is false that there is an instance of φ that is both non-fundamental and fully causes an instance of ψ.

Concerning the source of causal capacity premise, Trogdon (2018) has believed that the rationale for it appeals to general considerations about inheritance. Specifically, it appeals to the following principle, where lower case Greek letters range over properties:

*"The inheritance principle: necessarily, if A inherits φ then there are Δ that are a source of A's φ-ness (i.e. A inherits φ from Δ and no entity among Δ inherits φ)"* (p.186).

The source of causal capacity premise is motivated by the inheritance principle, which is assumed to be true. Trogdon (2018) has mentioned that Schaffer (2010) has presented some good reasons for the truth of the inheritance principle (reasons I have presented above).

Concerning the causality/fundamentality premise, there are some reasons to believe it. Given the causal inheritance premise and that none of the entities among Δ has their causal capacity by way of inheritance, the entities among Δ are fundamental. Given that A inherits its causal capacity from Δ, A is fully grounded by Δ. We get this result because the following thesis is true: it is necessary that if A inherits its causal capacity from Δ then the latter fully ground the former. This thesis can be supported by paradigmatic cases of causal capacity inheritance, such as when

relevant property instances characterise the same entity (e.g., DNA molecules and a gene), when relevant property instances characterise distinct but materially coincident entities (e.g., a lump of clay and a statue), and when relevant property instances characterise objects at different levels of mereological aggregation (e.g., carbon molecules and a diamond). In these cases, the inheritors are fully grounded by the entities from which they inherit. This gives us a reason to believe that it is necessary that if A inherits its causal capacity from Δ, then the latter fully ground the former.

In section 6.5.1, I will present a new objection against Schaffer's and Trogdon's views[126]. According to it, even if we have an intuition that there must be a source of reality or causal capacity, this source can be found outside of the grounding chain. Before turning to this new objection, I will present another argument for metaphysical foundationalism. Cameron has argued that we should endorse foundationalism because it is methodologically preferable.

### 6.4.2. Methodological Principles

Why should we trust the foundational intuition? Some people may not have it. Cameron (2008c) has tried to justify this intuition by appealing to theoretical utility. When we want to explain some phenomena, a unified explanation of them is a theoretical benefit. Other things being equal, it is better to give the same explanation of each phenomenon than to give different explanations of each phenomenon. This seems to provide a reason to believe the foundational intuition. If metaphysical infinitism is true and everything is grounded in something else, then while everything has a metaphysical explanation (a grounding for its existence), there is no explanation of everything that needs explaining. That is, the existence of every dependent object is explained by the existence of another prior object or set of prior objects, but there is no collection of objects that explains the existence of every grounded object. This is a theoretical cost that could be avoided by giving a common metaphysical explanation for every grounded entity. This can be done only if every grounded entity has its ultimate ontological basis in some collection of ungrounded entities. This is a reason to believe the foundational intuition against infinite descent in metaphysical explanation. For Cameron (2008c, p.12), *"if you believe in metaphysical*

[126] Different objections have been stated against the foundational intuition. Bliss (2013, 2014) has argued that Schaffer is begging the question. Bohn (2018) has claimed that he does not share the same intuition as Schaffer. Morganti (2014, 2015) has rejected the inheritance account. These objections are out of the scope of this thesis.

*explanation, you should believe it bottoms out somewhere. If you believe in priority, you should believe in fundamentality"*.

According to Cameron (2008c), the intuition under discussion is not necessarily true. Principles of theory-choice give us reasons to believe that certain theories are true, but these principles do not appear necessary. The world is not necessarily such that the simplest explanation is the right one. We just hope that our world is like this. Following these principles could have led us to wrong theories, but we hope that they do not in fact do so. There is a reason to believe in the truth of the intuition against infinitely descending chains of grounding, but there is no reason to believe in its necessity.

For Cameron (2008c), the facts concerning when composition and decomposition occurs are contingent (see also Cameron, 2007). It is a contingent fact about our world that there are no infinitely descending chains of grounding. There is no reason to deny the possibility of a gunky world. We have only a reason to reject that the actual world is like that. Gunk and the dependence of wholes on parts seem possible. There is no need to reject the possibility of one of them. There is pressure only to reject the actuality of gunk if the wholes are grounded in their parts.

## 6.5. Objections to Metaphysical Foundationalism

I will present a new objection to Schaffer's and Trogdon's views. I believe that the source of reality or causal capacity of a grounding entity can be the cause of it, and therefore, infinitism does not face any problem concerning the source of reality or causal capacity. Nevertheless, I think foundationalism is methodologically preferable. I will argue that despite recent objections against Cameron's argument, a modified version of it, which considers various methodological principles, still holds.

### 6.5.1. Alternative Sources of Reality and Causal Capacity

I am not persuaded that our intuitions can be used to argue for foundationalism. What is behind our foundationalist intuitions is our search for a source of reality or causal capacity. This is shown explicitly in Trogdon's (2018, p.192) *"causal inheritance premise: necessarily, if A is*

*nonfundamental and has causal capacity then A inherits its causal capacity from whatever fully grounds it"*. However, it seems that these sources can be found even if infinitism is true. In what follows, I will mention 'source of RCC', where 'RCC' means 'reality or causal capacity'. I will do so because independently of whether foundationalists choose to speak about reality or causal capacity, a similar objection against their view can be stated. According to the foundationalist argument, given the need for a source of RCC and given the truth of a specific account of grounding, foundationalism follows. I will argue that even if there is a need for a source of RCC and that specific account of grounding is true, alternative plausible metaphysical views can be suggested. Instead of searching for the source of RCC inside the priority chain, we could search for this source outside of the priority chain. The cause of a grounded entity can be its source of RCC. More specifically, alternative plausible sources can be the physical cause of each grounded entity (the direct[127] cause or the initial cause of the universe) or God[128].

Whether the foundationalist argument succeeds relies partially on which account of causation is true. In the first part of this section, I will assume the truth of a generative and power conferring account of causation (such as the productive account of causation, or the dispositionalist account of causation[129]: see chapter 3). By 'generative', I mean that causes generate the effects: they bring about the existence of the effects. In this section, I will use 'generative' in its metaphysical reading; that is, causation talk is licensed because some relations are generative, and some are not. Building talk is not merely a matter of convention. By 'power conferring', I mean that the cause transmits causal powers to the effect (that is, the effect has its causal powers in virtue of its cause). This account of causation also allows that the cause transmits reality to effect (i.e., the effect is real in virtue of its cause), but I will talk about causal powers in what follows just for ease of exposition. There is a similarity between causation and grounding: both of them are building relations (see Bennett, 2011b, 2017). If a generative, power conferring account of

[127] $E_1$ causes $e_2$ directly, iff there is not an event $e_3$ between $e_1$ and $e_2$ such that $e_1$ causes $e_3$ and $e_3$ causes $e_2$. $E_1$ causes $e_2$ indirectly, iff there is an event $e_3$ between $e_1$ and $e_2$ such that $e_1$ causes $e_3$ and $e_3$ causes $e_2$.

[128] Nothing related to my argument relies on the existence of a God. If someone does not like to assume the existence of God, one cannot use this as an objection to my view. Alternative *physical* sources of RCC can be used and will be presented below to show that foundationalism is not the only way to avoid a vicious infinite regress. Examples that involve God's intervention are given only as ways to clarify my claims.

[129] For productive accounts of causation, see Fair (1979) and Castaneda (1984). For dispositionalists account of causation, see Bird (2007), Heil (2003, 2012), and Shoemaker (1980, 1998, 2007).

causation is true, alternative sources of RCC can be the immediate/direct physical cause of a grounded object, the first physical cause of the universe, or God (I will give examples below).

In the second part, I will assume that the structural equation models account of causation is true. This is the account that Schaffer endorses. What I will say will apply to other non-generative and non-power conferring accounts of causation (such as the counterfactual account of causation). If a non-generative, non-power conferring account of causation is true, a source of RCC may not be needed. Maybe we live in an eternal universe (i.e., a universe that always existed), and so, there is no need for a source of RCC. Every entity always had its RCC. There was no point at time that an entity came into existence and causal powers were transferred into it. So, we should not search for an entity that is the source of RCC of a grounded entity.

Otherwise, God can be an alternative source of RCC. In this case, there is a kind of causation that is generative and power conferring (God's causation), even though *physical* causation is non-generative and non-power conferring. This God could be either the Prime Mover, a four-dimensionalist God, or the occasionalist God. Maybe the Prime Mover created the first physical event, and everything happens without God's intervention after that, or God created everything from the beginning (a kind of four-dimensionalism), or the occasionalist God creates the universe every single moment (detailed examples will be given below).

I will not argue that one of these metaphysical views is the correct one. Instead, I will argue that different metaphysical views avoid vicious infinite regresses and therefore, we should not suppose that only foundationalism does so. Further arguments are needed to show why foundationalism should be preferred.

Let's examine the aforementioned metaphysical views in more detail through some examples. Consider the case of a physical cause being the source of RCC. It may be asked why a statue is real and has a certain causal capacity (being solid, being white, etc.). Two possible answers are: because of its creator[130] (its cause) or its parts (its atoms, its grounds). Schaffer's and

[130] More precisely, the person that was creating the statue. At some points, I will talk as if the object is the cause of an effect, but this can be considered as a shorthand for the event that caused the effect (that can also be an event). Events can be the relata of causal relations. This does not influence my argument. Following Kim (1984), I conceive an event as the exemplification of a property by an object at a time. If we talk about an event being the source of RCC, both events and objects can be conceived as fundamental ontological categories. Then, events may be mentioned to show how a vicious infinite regress of grounded objects or events can be avoided. For example,

Trogdon's worry is that if its grounds have further grounds ad infinitum, then we are faced with a vicious infinite regress. But I believe that the vicious infinite regress can be avoided if the statue's creator is the source of RCC. The creator made it the case that the statue is real and has a specific causal capacity. We do not need to look at further causes in the past to explain the RCC of the statue. This can be the case even if the statue's grounds have further grounds ad infinitum.

Still, someone may argue that to really explain why the statue is real and has causal capacity, we should search for the desires and beliefs of the creator that caused him to make the statue, and we should also find out how these desires and beliefs were formulated, and so on ad infinitum, and this leads to a vicious infinite regress of causes.

At this point, two responses are available: (a) there is not actually a vicious infinite regress, (b) a God or a first physical cause can be alternative sources of RCC. I will argue for (a) below: the main claim is that there is no transference of the *same* status ad infinitum. (b) can be sketched here: I believe that worries about vicious infinite regress of causes can be avoided if God is the source of RCC of the statue[131]. It is possible that a Prime Mover created the universe, and as a result, the chains of causal dependence stop at some point in the past. The Prime Mover is supposed to have the power to create things ex nihilo. Unlike physical entities, a Primer Mover does not need to be transferred RCC from somewhere else to have RCC. It is also possible that occasionalism is true: every moment God is creating the universe and brings about the RCC of each object. This way the vicious infinite regress is avoided too. Creation in both cases is a causal process.

If somebody is sceptical of the existence of a God, an initial/first physical cause can be considered as the source of RCC. It may be the case that the universe has a beginning. At that time,

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an event $e_1$ at time $t_1$ can cause an event $e_2$ at time $t_2$. $e_2$ consists of a grounded object O having a property P at time $t_2$. O's source of RCC is $e_1$.

[131] It could be claimed that this is another form of foundationalism: God is the foundation. This could be the case especially if 'causation' and 'grounding' refer to the same building relation (see Bennett (2011b) for this view, even though she changed her mind later (Bennett, 2017)). If someone wants to call this view foundationalism, despite the existence of infinite priority chains, I do not see any problem with that. My main claim here is not so much to defend infinitism but to claim that the postulation of ungrounded physical objects is not the only way to avoid a vicious infinite regress. That is why I restrict the term 'foundationalism' only to the view that there is a fundamental level of objects.

There is another way to express the aim of this chapter: I argue that considerations concerning avoiding vicious infinite regresses show that the world has a foundation. However, they do not help us to decide what this foundation is.

there was a first object that directly or indirectly caused the existence of every other object, and so, this object is the source of RCC of every other object. This object always existed and did not receive its RCC from something else. As a result, there is not a vicious infinite regress: the chains of causal dependence stop at the beginning of the universe. Sometimes, I will mention God just for ease of exposition. It could be replaced by 'first physical cause'.

What Schaffer and Trogdon need for their argument to be successful is that only through ungrounded physical objects we can avoid a vicious infinite regress. But as the above examples show and I will argue below, there are other possible scenarios that avoid this problem, and it is not obvious that we should prefer the foundationalist's suggestion.

#### 6.5.1.1. Generative, Power Conferring Accounts of Causation

Let's develop these claims further by remembering the foundationalist's worry. I will talk here about the alternative sources of RCC that rely on a generative and power conferring account of causation, and below, I will consider whether non-generative and non-power conferring accounts of physical causation can be used to develop the foundationalist argument and respond to my objections. A foundationalist worries that if metaphysical infinitism was true, a priority chain would not have a source of RCC, and it would be a mystery why anything exists. They have the intuition that there must be a source of RCC, a ground, that metaphysically explains why anything else exists or has causal capacity. Cameron (2010a), Schaffer (2010) and Trogdon (2017) have argued that the whole cosmos is the source, and Cameron (2008a) has considered a plurality of atoms as the source. All of them searched for the source inside the priority chains.

But maybe the source can be outside the priority chain. To see this, let's consider again the causal inheritance premise that was accepted by Trogdon[132]. *"The causal inheritance premise: necessarily, if A is nonfundamental and has causal capacity then A inherits its causal capacity from whatever fully grounds it"* (Trogdon, 2018, p.192).

I do not think that A can inherit its causal capacity *only* from *whatever fully grounds it.* Instead, I believe that the following conditional is true: if A is nonfundamental and has causal

[132] My following remarks would be similar, even if I talked about Schaffer's version of this argument.

capacity then A inherits its causal capacity from *its cause* or *its full ground*[133]. This conditional reveals another way that a nonfundamental entity can have a source of RCC. The cause of A (B) can be its source, and the explanation of why A is real and has a certain causal capacity can end there. What really matters is that an explanation ends. Whether it stops in an ungrounded physical object or a cause does not matter[134]. It is not advantageous to have one over the other.

Assume that infinite priority chains exist. Each grounded entity may inherit RCC from its cause. The source of RCC of an infinite chain can be the cause of it. The cause causes the existence of each object in the infinite chain and makes these objects have the causal capacities they do. It metaphysically explains the nature and causal capacities of all these objects because of that. There is no extra need for something inside the chain that is also the source of its RCC.

To see that the source of RCC of a grounded object can be its cause, let's digress and examine fully pedestalled chains presented by Dixon (2016). These chains were presented to argue for a specific definition of well-foundedness[135], but they are also relevant for the current topic. The structure of these chains is the following, where orange arrows symbolise grounding (e.g., $Y_2$ grounds $Y_1$):

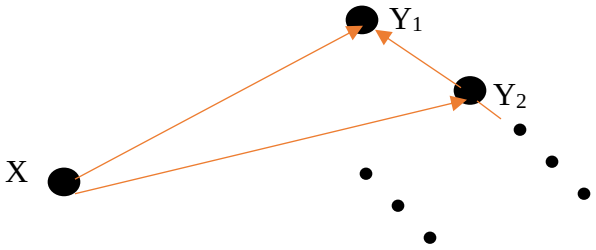


**Figure 3:** A Fully Pedestalled Chain

[133] This conditional implies different possibilities depending on whether we understand "or" as inclusive (overdetermination) or exclusive (no grounding relations, uncaused priority chains). These possibilities will be discussed below.

[134] If what is needed is an ultimate explanation, either an ungrounded ground or an uncaused cause, God or a first physical cause could be the uncaused cause and the alternative source of RCC. I will develop this claim below.

[135] They were used to argue against a set-theoretic notion of well-foundedness. This notion does not allow infinite priority chains to be well-founded because they do not terminate in fundamental entities. However, Dixon (2016) has argued that some infinite chains, such as fully pedestalled chains, are acceptable for the metaphysical foundationalist as every non-fundamental entity is fully grounded by fundamental entities and there is still a source of reality for every non-fundamental entity.

All the Ys and the X are facts. Even though this pedestalled chain contains a non-terminating grounding chain, each non-fundamental fact it includes is fully grounded by the fundamental fact X. Each $Y_i$ is fully grounded by each $Y_{i+1}$ and is also fully grounded by X. X is fundamental. Each fully pedestalled chain contains a non-terminating grounding chain. Still, they are well-founded because every non-fundamental fact is fully grounded by a fundamental fact. For Dixon (2016), *"the principle that best captures the claim that grounding is well-founded* [is] […] *(FS) Every non-fundamental fact x is fully grounded by some fundamental facts Γ"* (p.446).

Now, instead of facts, imagine that X and all the Ys are objects[136] (X may be an ungrounded particle and $Y_1$ may be an infinitely divisible particle). $Y_1$ is a composite object, $Y_2$ refers to the objects that ground $Y_1$, $Y_3$ refers to the objects that ground $Y_2$, and so on. Also, imagine that X is the cause of the non-terminating grounding chain. The arrows beginning from X represent a causal relation. The other one still represents the grounding relation. I call what we imagine now a 'Fully Pedestalled Causal Chain 1' (FPCC1, see figure 4 where blue arrows symbolise causation[137]). X seems to be the source of RCC of all the Ys. Being is achieved in virtue of X. Every Y exists, is real, and has the causal capacity it does in virtue of X. This seems to be sufficient to metaphysically explain the reality and causal capacity of all the Ys. Their metaphysical explanation ends in the X.

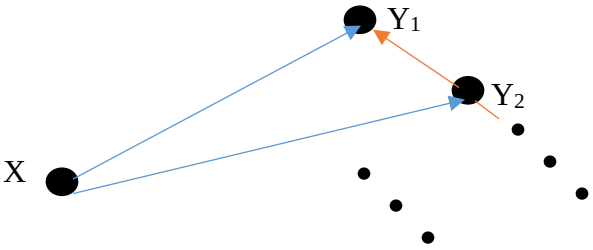


**Figure 4:** A Fully Pedestalled Causal Chain (FPCC1)

If we are sceptical of objects being the relata of causal relations, the X and the Ys can be understood as events. We can think of God, the creator of the universe, who caused everything else to exist either directly or indirectly. A certain event, God causing the existence of the first

[136] Remember that they can also be events. It does not influence my argument. Talking about events may be preferred because they are considered to be the relata of causal relations. I talk about objects just for ease of exposition.

[137] In figure 4 and figure 5, I use singular variables to refer to grounds for convenience only. All grounds can be understood plurally. That is, each variable that refers to a ground can refer to multiple entities. Grounding may be a many-one relation: many entities ground one entity.

gunky object $Y_1$, (i.e., event *x*, God creating a gunky object at time $t_1$, causing event $y_1$, consisting of the physical object $Y_1$ being real at time $t_2$) is the source of RCC of all physical objects and events. For example, $Y_1$ causing the existence of other gunky objects is happening in virtue of having God as its source of RCC. Another example would be God directly causing the existence of several gunky objects, and the interaction between these objects causes the existence of other gunky objects.

These infinite chains seem to be well-founded in a sense close to what foundationalists are saying. Remember the definitions of well-foundedness we have seen already. For Schaffer, a priority chain is well-founded, iff it terminates in something fundamental. For Dixon (2016), *"the principle that best captures the claim that grounding is well-founded* [is] […] *(FS) Every non-fundamental fact x is fully grounded by some fundamental facts Γ"* (p.446). What both Schaffer and Dixon want are something that is the source of a priority chain. If we understand 'fundamental' as 'ungrounded', then not all kinds of fully pedestalled causal chains are well-founded as X may be a part of an infinite chain, and therefore, it will be grounded in something else (we will examine a chain like this one below). Still, these chains are well-founded in a close sense. They are well-founded* because they terminate in and are fully caused by their causes[138]. Their causes are their source. That is why they terminate there. The core motivation for endorsing foundationalism is having a source that provides a metaphysical explanation that ends somewhere. But we can have such a source even without foundationalism and so, it seems that we lose the reason to advocate foundationalism.

It could be objected that the source of RCC of a grounded object cannot be its direct cause. Consider a grounded object, A, and its cause (B). It may be argued that B cannot be the source of RCC of A because B is real and has causal capacity in virtue of something else: its cause (C). C also is real and has causal capacity in virtue of something else, and so on ad infinitum. So, the explanation never stops and there is a vicious infinite regress.

[138] Objection: The infinite chains are well-founded* in a sense different from those used by Schaffer and Trogdon. This makes all the discussion a verbal dispute!
Reply: I do not think so. The dialectic does not go this way: we need well-foundedness, we do not have it, but at least we have well-foundedness*, and so, my view, infinitism, is good enough. Instead, Schaffer, Trogdon, and I believe that a grounded object must have a source of RCC, and I argue that foundationalism is not the only theory that provides such a source. As a result, considerations about vicious infinite regresses do not show that foundationalism is true.

But I think that my view does not lead to a vicious regress. B can be the source of RCC of A and the explanation ends there. If we ask why B has the causal capacity it does, then we ask for an explanation of a different causal capacity. While A may have causal powers P, B may have causal powers Q. So, we are not asking for an explanation of the same causal capacity all the time. Of course, we could ask why B has the causal capacity it does, but then we are not concerned with A anymore. We are not searching anymore for the source of causal capacity of A. We are searching for the source of causal capacity of B. For example, consider again the case of the statue and its creator: the statue and its creator have different causal powers.

We cannot say something similar about grounding. In the grounding case, the problem is that we always search for the source of the same causal capacity, and we never get to a point where this explanation stops. Consider the case of an object that has a certain mass in virtue of its parts that have the same mass, and these parts have this mass in virtue of their parts that have the same mass, and so on ad infinitum. The explanation of why the object has a certain mass always moves somewhere else.

Also, consider the case of determinable properties (e.g., being in pain) and determinate properties (e.g., being in a certain brain state). According to Shoemaker (2007) and Wilson (2011), the causal powers of each determinable are a non-empty proper subset of the causal powers of their determinates. This can be understood as the causal powers of the determinables being metaphysically explained by the causal powers of their determinates. If there is no fundamental level, the explanation of the same causal powers is always moved somewhere else.

For example, consider a property D that has causal powers $P_1$-$P_5$. Property D is grounded in property E that has causal powers $P_1$-$P_{10}$. Property E is grounded in property F that has causal powers $P_1$-$P_{15}$, and so on ad infinitum. The source of causal capacity of D always moves somewhere else: the metaphysical explanation of the causal powers of D always moves to another property that possesses, among others, these causal powers. The same causal powers are found in other properties ad infinitum. There is transference of the same causal powers ad infinitum.

Remember what Schaffer has considered as a vicious regress. For Schaffer (2016, p.95), *"a regress counts as vicious if and only if there is an endless chain of dependency with transference of the relevant status"*. We might be asked 'Why does a grounded object A have this specific causal capacity?', and we would mention B, its cause, as the source. Then, if we were asked 'But

why does B have this specific causal capacity?', the causal capacity in question is different from the causal capacity of A. Therefore, we are not talking about transference of the same status anymore. Therefore, an endless chain of causal dependencies is not vicious.

Someone may respond to me by saying that I was talking about the specific determinate causal powers (or the determinable property of having these specific causal powers) instead of the determinable property of having the capacity for causal activity (i.e., the determinable property of having causal powers), and the latter was the property that Trogdon was talking about. An object has this determinable property, iff it has determinate properties with specific, determinate causal powers. This determinable property reveals a way that there can be a transference of the same status from the cause to the effect. There can be an infinite chain of causal dependence in which there is always transference of the capacity for causal activity. A vicious infinite regress reappears.

But I think that we can understand this determinable property as nothing over and above determinate properties that have specific causal powers. It is not something distinct from determinate properties that have specific causal powers. It is true to say that an object possesses the property of having the capacity for causal activity iff it possesses properties with specific causal powers. An additional determinable property is not needed to make sense of our claims. There is no motivation for postulating the existence of an additional property.

Even if we think that having causal capacity is a determinable property over and above the properties with specific causal powers and as a result, there is a transference of the same status from the cause to the effect, then it may be the case that the intuition behind the foundationalist argument can be used to argue for the existence of either a fundamental level or a Prime Mover. It may be argued that if A exists in virtue of B that exists in virtue of C and so on ad infinitum, then it is a wonder why A exists: the status of A is always transferred somewhere else. But if A is grounded in a fundamental entity, then it can be explained why A exists by avoiding a vicious infinite regress. Still, I wonder why we should not say instead that infinitism is true and a Prime Mover is the source of RCC of a grounded object. A vicious infinite regress is avoided this way too. It seems that the foundationalists' intuitions can be used to argue for this claim instead.

#### 6.5.1.2. Non-Generative, Non-Power Conferring Accounts of Physical Causation

So far, I assumed that a generative, power conferring account of physical causation is true. However, metaphysical views about causation and existence, which were endorsed by Schaffer, may be used at this point to argue against my objection.

Schaffer (2016, p.95-96) has allowed for limitlessly backwards causal and temporal sequences. Concerning causation, he has claimed that there is no transference of reality. The effect has intrinsic reality unto itself and is ontologically subsistent in its own right. No first cause is needed because of that. *"Within each distinct portion of reality, one must find an internal source of its reality (this is the required well-foundedness of grounding). But across distinct portions of reality, one is dealing with metaphysically independent tiles of the cosmic mosaic, and each tile is there from the start without needing a source (this is the permitted non-well-foundedness of causation)"* (p.96).

In the quoted passage above, it is not mentioned why we should believe that this is the case. It is claimed that while limitlessly backwards causal sequences do not lead to vicious infinite regresses, infinite chains of grounding do so. Schaffer says that grounding *must* be well-founded to avoid vicious infinite regresses. But this does not seem to be the case.

It is unclear why all the objects of an infinite priority chain could not always exist without the need for a source. It is not obviously true that there must be a fundamental entity that generates the grounded entities. There is an alternative plausible story that I suggest in this section. Schaffer's story may seem more intuitive, but this does not make the alternative false (and this is what Schaffer needs for his argument to be sound). Schaffer did not give any argument against this alternative story.

Another way to express what has been said so far is that Schaffer has a certain foundational intuition in mind. At any moment, there is a fundamental level and entities that are generated by it. If there was not a fundamental level, how all these entities could be generated? The generator would move somewhere else ad infinitum. My answer: they could be generated by their (first) cause or they could have always existed[139]. I do not see why Schaffer's kind of generative model is the only possible solution.

[139] It may be argued that if everything always existed, then foundationalism is true: everything is fundamental in a broader sense (X is fundamental iff X is ungrounded or always existed). As mentioned before, I restrict

Grounding can still be generative in my view. It can still play the same role but in an overdetermining way. It can be the case that all entities of a priority chain always existed, and at any single time grounding overdetermines the causal capacity of entities. Alternatively, it can be the case that each grounded object is real and has causal capacity because of its (first) cause *and* its ground. So, it does not need to have RCC in virtue of an ungrounded object. I will briefly discuss below whether this kind of overdetermination is problematic.

It might be argued that Schaffer's generative model is ontologically simpler. So, we have a reason to prefer it. But then, it seems that what really supports foundationalism is a methodological principle. This brings us closer to Cameron's (2008c) argument for foundationalism. We are not talking anymore about the metaphysical impossibility of infinitism. We argue that we should support foundationalist because it is the simpler metaphysical theory (an argument that I will develop and endorse in the next section). According to Schaffer's and Trogon's foundationalist argument, which mentions the need to avoid a vicious infinite regress, foundationalism is the only possible way to avoid this regress. Methodological principles do not play any role in the argument. If alternative sources of RCC are possible, more needs to be said about why we should prefer foundationalism. If we add methodological considerations in the argument for foundationalism, it seems that these considerations do all the work. Mentioning the need to avoid a vicious infinite regress is redundant.

I think that either both causes and grounded entities need to have a source of RCC that does not receive its RCC from something else or neither of them does. If both of them do, we may have two equally plausible solutions here: either there is a Prime Mover or a fundamental level. A Prime Mover may be the source of RCC of all objects. Otherwise, a fundamental level is this source: at any moment, certain fundamental entities are the source. They both can be the source, and foundationalists have to say more about why one option is better than the other one.

A disanalogy between the grounding case and the causing case may be that while in the infinitist's account, a cause brings about the existence of grounded entities in a robust sense, in Schaffer's account, the cause does not bring about the existence of the effect in a similar robust

'foundationalism' to the view that all grounded entities are fully grounded in ungrounded entities. Even if other metaphysical views can be called 'foundationalist' in a broader sense, it does not influence my argument that vicious infinite regresses are not avoided only through ungrounded physical objects.

sense (the effect was there all along). That is, causation is not generative (as I use the term). Infinitists may need a more robust account of causation than what Schaffer endorses.

Following Pearl (2000) and Spirtes et al. (2000), Schaffer (2016) has formalised causation through structural equation models that mention correlations to pick out the true causal relations. Under certain conditions, one can infer causation from correlation. *"Structural equation models come with precise—and indeed freely downloadable—discovery algorithms that allow one, given certain plausible assumptions, to estimate causal structure from sufficiently rich correlational structure over three or more variables"* (Schaffer, 2016, p.60). If you want to find out whether a certain type of causal relation holds, you can *"input your data into TETRAD (or some other causal discovery algorithm), and receive a precise and empirically reliable estimate of direction and strength of causal influence"* (p.60). If you want to find out whether a certain token causal relation occurs, you use the type-level picture you get from using a causal discovery algorithm, assign values to the relevant variables that refer to potential causes, and then look at what would happen to the variable that refers to an assumed effect if you re-assign a particular variable while keeping the other variables fixed (distinct variables represent distinct features of the world). In other words, whether a token causal relation holds can be discovered through a test in terms of counterfactual covariation: wiggle the cause, and the effect wiggles.

It may be argued that for the cause to be the source of RCC of the effect, infinitists need a more robust account of causation than the structural equation models account (e.g., a productive account of causation that identifies causation with the transference of energy from the cause to the effect[140]); they need a kind of causation that transfers RCC from the cause to the effect. This is the only way that the cause can make the effect have RCC. But generative accounts of causation are false, and so, my objection is false too.

Nevertheless, even if we endorse the structural equation models account of *physical* causation, I still do not see why it is impossible that God produced everything from the beginning, and this is the source of RCC of everything. God causes events in a *non-physical* way. This alternative is still viable. Even if there are good reasons to conceive physical causation as non-

[140] Schaffer (2016) has claimed that both causation and grounding are productive and generative, but he has meant this in a different sense from what the productive account of causation does. As we have seen above, for Schaffer, causes and effects always existed. A cause does not bring about the existence of an effect; there is no transference of reality from the cause to the effect.

generative and non-power conferring, they do not exclude the possibility of non-physical causation that is generative and power conferring. More generally, the proponent of this response would have to make the case that the structural equation models account is an account of *all* causation, i.e., of the one and only causal relation. However, it is unclear how to make this case.

Alternatively, if we have good reasons to think that the structural equation models account is an account of all causation, it could be claimed that all entities always existed, including the grounded entities (i.e., the universe is eternal). All times are equally real and there is no beginning of the universe. There is no moment that the universe was created either by Big Bang or God. In this case, grounded entities do not have a source of RCC and there is no reason to think that they should have. These entities always existed. There was no time that they were brought into existence and causal capacity was transferred into them from something else. So, even in this case, worries about vicious infinite regresses do not motivate the truth of foundationalism.

#### 6.5.1.3 Causal Explanations, Metaphysical Explanations, and Sources of RCC

The foundationalist argument I want to undermine can be formulated as (a) or (b) below:

a) If there were infinite (backward) dependency chains there would not be an explanation of why a given object exists and/or has its causal powers. But there must be such an explanation. Therefore, there are no infinite (backward) dependency chains.

b) If there were infinite (backward) dependency chains there would not be a source of reality and causal powers for a given nonfundamental object. But there must be such a source. Therefore, there are no infinite (backward) dependency chains.

I deny the first premise of the argument by claiming that the explanation/source of reality and causal powers can be provided by the *cause* (proximal or distal) of the nonfundamental object.

A foundationalist may have a worry about this argument: it seems that my point against the first premise of the argument works just in case one understands 'explanation' as 'whatever explanation' and 'source of reality and causal powers' as 'whatever explains, in some sense of 'explaining', why a given object exists and has its causal powers'. If these liberal understandings of such terms are adopted my argument against the first premise works: in fact, what *causally*

explains why a given object exists and has its causal powers explains (in the causal sense of 'explaining') why the object exists and has its causal powers. But it may seem to a foundationalist that this is not the sense of 'explaining' that foundationalists such as Shaffer, Cameron, Trogdon have in mind. They are in fact thinking of *metaphysical explanation* or *constitutive* explanation: an explanation whose features are different from those of causal explanations (for instance, it is synchronic, it is such that the explanans necessitates the explanandum, it is true in virtue of the nature(s) of the things involved). Accordingly, what they have in mind when they speak about a 'source of reality and causal powers' is something that explains, in this metaphysical/constitutive/synchronic sense of 'explanation', why a given object exists and has its causal powers. But if one understands the first premise of the argument in these more exigent senses of 'explanation' and 'source of reality and causal powers', my argument does not work anymore: the vicious regress to which foundationalists are pointing is in fact precisely one concerning metaphysical/constitutive explanation and it may seem to an objector that *this* regress cannot be stopped by pointing to another kind of explanation. In other words, the foundationalist may stress that by pointing to an external cause one explains how the object, with its causal powers, *came* to existence; but this is not the request of explanation to which the foundationalist wants to answer: what he wants to explain is in fact why the object exists and is what it is at any given time once it came to existence (synchronic/constitutive explanation).

I think that an infinitist can respond satisfactorily to this objection. Suppose that X, a grounded object, grounds Y, another grounded object. In this case, Y is metaphysically explained by X. This metaphysical explanation is fine even though X is a grounded object because X already has RCC from its cause.

If we only focus on metaphysical explanations, there is a problem. The original problem of metaphysical infinitism was that infinitists were trying to metaphysically explain Y by mentioning only its ground. If we just mention X, it is a wonder why X can metaphysically explain Y satisfactorily. X has its RCC in virtue of another grounded object, and so on ad infinitum. The explanation never stops. But if we give a causal explanation of X, then it can be shown why a grounded object is sufficient for metaphysically explaining what it grounds.

The initial worry of the foundationalist was that X cannot metaphysically explain Y because X gets its RCC from something else that gets it from something else, and so on ad

infinitum. But if X gets its RCC from its cause and the transference of RCC ends there (or the transference ends in a Prime Mover or a first physical cause), there is not any problem with a grounded object metaphysically explaining another grounded object.

The foundationalist worry may be that once X gets its RCC from its cause, there must be something else that gives it its RCC or explains why X keeps having RCC. I do not see why this must be the case and this worry brings us close to the objection mentioned by Bliss (2013) that foundationalist arguments concerning vicious infinite regresses are circular. The seek for a specific kind of metaphysical explanation is motivated by specific foundationalist intuitions, but we have these intuitions only if we are already persuaded by foundationalism.

The assumption that once X gets its RCC from its cause, it keeps having it, seems very plausible. A reason must be given why we should not think this way.

I have decided to talk about arguments (a) and (b) because I think these are the best versions of foundationalist arguments concerning vicious infinite regresses because they avoid circularity. Still, these arguments also fail.

#### 6.5.1.4. Objections and Replies

Earlier, when I imagined FPCC1, I imagined that X (e.g., an ungrounded particle) is not a part of an infinite chain. I do not consider problematic a world in which some objects are parts of infinite chains, while other objects are not. If for any reason[141], someone does, the following case could be considered:

[141] Schaffer (2010) has claimed that compositional facts are not contingent. If priority monism or pluralism is true, it is true with metaphysical necessity. So, Schaffer believes that *"either it is metaphysically necessary for the cosmos to be a fundamental whole, or it is metaphysically necessary for the cosmos (if it has proper parts) to be derivative"* (p.56). A metaphysical infinitist could agree that compositional facts are not contingent, and contra Schaffer, argue that metaphysical infinitism is true with metaphysical necessity. So, it is metaphysically necessary for the cosmos to include only infinite chains.
Otherwise, she may think that compositional facts are contingent and still believe that there are only infinite chains in the actual world because of methodological reasons (a world in which there are only infinite chains is simpler than a world in which there are both infinite and finite chains).

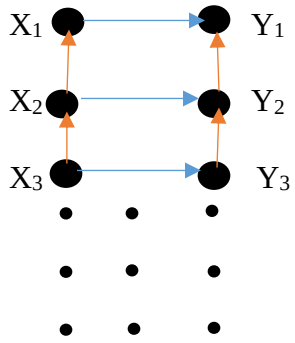


**Figure 5:** Fully Pedestalled Causal Chain 2 (FPCC2)

There are infinite Xs that form an infinite priority chain and Ys do so too (e.g., $X_1$ is the creator of the statue and $Y_1$ is the statue; both are infinitely divisible). As with the FPCC1, there is a source of RCC for every Y, even though the source is not inside the infinite chain of Ys. A difference is that there is not one X that is the cause of all the Ys. Still, the metaphysical explanation for each Y ends somewhere (in its direct physical cause). If we worry about vicious infinite regress of causes or seek an ultimate metaphysical explanation, the source of RCC of each Y can be the first physical cause of the universe.

A revised foundationalist argument may still be possible. It can be stated by arguing that certain metaphysical positions that I used here are false. The foundationalist has to deny the truth of occasionalism, the existence of a Prime Mover, that our universe is eternal, and that there was a first physical cause. If these entities exist or these theories are true, they can provide a non-foundationalist source of RCC. In this way of thinking, this paper contributed to making explicit how a foundationalist should argue for their position. So, there is still a philosophical value to it. It revealed that the dialectic should change. It is not the case that foundationalism is the only way to avoid a vicious infinite regress. Foundationalism is the only way to avoid a vicious infinite regress, given that certain metaphysical views are false.

However, I am sceptical of the plausibility of this foundationalist reply. I am not aware of any argument for the definite falsity of these views. Usually, they are rejected because of methodological principles, and this brings us again closer to Cameron's (2008c) argument.

If what I have said so far is correct, our intuitions cannot be used to argue for foundationalism because the source of RCC of a grounded object can be its (first) physical cause or a God. Fully pedestalled causal chains are possible and counterexamples in the claim that the

source of RCC must be inside a priority chain. Priority chains can terminate, even if infinitism is true. What really encourages our foundational intuitions is the search for a source of RCC, and this source can be found even if infinitism is true. Therefore, a foundationalist must abandon their view if they do not have any other reason to endorse this theory.

### 6.5.2. Against Methodological Principles for Foundationalism

It seems that metaphysical intuitions do not provide a reason to endorse metaphysical foundationalism. What about methodological principles? I will argue that despite recent objections against Cameron's argument, a modified version of it, which considers various methodological principles, still holds. Responding to objections will help to show that foundationalism is methodologically preferable.

To begin with, Bohn (2018) has not agreed with Cameron (2008c) that there is more theoretical unity with fundamental facts than without. First, the infinite grounding chains may have as much unity without fundamental facts as with. Second, the fundamental facts might be separate pluralities that have little or nothing in common. If that is the case, there could be as much disunity with fundamental facts as without. Not any reason was provided to believe that there are only a few fundamental facts. Therefore, foundationalism does not necessarily provide more theoretical unity than infinite descending grounds.

What if our current scientific theories are true or approximately true? Then it seems, that pluralities have a lot of things in common. Fundamental physics postulate only a few kinds of fundamental entities. If we postulate infinite levels of complexity, we lose this simplicity. This is the case, even if the same kinds of entities are repeated at different levels. This repetition adds complexity to our theory.

Reliance on the truth or approximately truth of current scientific theories does not make this argument very strong, but maybe this is all we can do. Still, it may not be a bad approach as what is fundamental is at least partially an empirical issue.

Therefore, the methodological principles of simplicity and unified explanation give us a good reason to believe that there is a fundamental level.

Moreover, Schaffer (2003) has argued that metaphysical foundationalism is not a priori methodologically preferable. Even though it is a more economical supposition than infinitism, there are competing methodological considerations that favour infinitism. First, infinite division allows greater explanatory scope because the workings of every single entity can be explained by describing the workings of its parts. Foundationalists necessarily leave unexplained the workings of the fundamental entities.

However, I think that foundationalism allows the same explanatory scope as infinitism. Even the workings of the ungrounded entities can be metaphysically explained. This can be done by mentioning their causes. An ungrounded entity is real and has the causal capacity it does in virtue of its cause. That is, its cause determined its being and causal capacity. Nothing else is needed to be the source of reality or causal capacity of an ungrounded entity.

Second, for Schaffer (2003), infinite division yields a more elegant hypothesis because the pattern of division embraces the whole structure of nature. However, I think that even though infinite division yields a more elegant hypothesis, it also yields a more complex one. Therefore, it is not clear that infinite division is methodologically preferable. At best, we have a tie here. Still, the methodological principle of unified explanation may lead us to endorse foundationalism.

Furthermore, Morganti (2014) has disagreed with the claim that a foundationalist explanation is always simpler than an alternative infinitist explanation because the former "cuts" the latter at some point. He has done so because of three reasons. First, some infinitist analyses are qualitatively different from foundationalist ones. It is not the case that the only difference between them is the number of entities they posit. Second, it is controversial whether, in every case in which both a foundationalist and an infinitist explanation are available, the former is preferable. Even though the former may seem intuitively better, a careful assessment of all pros and cons might lead to the conclusion that the latter is better. Third, we can conceive scenarios in which only an infinitist explanation is available. According to Morganti, it has been argued that only infinitism provides a genuine explanation of certain philosophical issues. This is so for the ontological constitution of facts and Bradley's regress (see Orilia, 2006, 2009) and for the notion of literal contact between extended objects (see Zimmerman, 1996). I will not discuss the former as I think Bennett (2011a, 2017), and Dixon (2016) have given plausible foundational explanations. I will not discuss the latter because I think Sider (2000; he has defended the possibility of an ontology

of point-sized simples) and Simons (2004; he has defended an ontology of extended simples) have given good foundationalist responses. Morganti also has suggested that given that properties are universals, only infinitism can provide an analysis of partial similarity facts in terms of partial identity. I will not discuss this issue in detail as I do not think that properties are universals. Following Heil (2003), I believe that properties are modes, and partial similarity facts can be analysed by mentioning modes and the application conditions of our predicates.

Morganti (2014, 2015) has argued that support for the first and second reason is Hans Dehmelt's (1989) model of elementary particles based on infinite regression[142]. According to this model, there are infinite layers, each one populated by three new particles-types closely resembling each other, with the characteristics required to account for the particles at the next dependent level. The series asymptotically tends to Dirac point particles. First, this model is qualitatively different from the Standard Model of elementary particles as the latter describe particles that appear only once in the priority/dependence hierarchy that structures the physical world. Therefore, Dehmelt's model is inconsistent with the standard model. Second, Dehmelt presents his model as being simpler than the Standard Model as it eliminates Dirac's postulate that a physical entity has zero extension in space.

So, *"an infinite chain of being is surely ontologically inflationary but might be summarised in a linguistically and ideologically economical way"* (Morganti, 2015, p.570-571). Infinitist explanations, like the one proposed by Dehmelt, are acceptable and preferable if they are 'boring'. 'Boring' here means that *"nothing surprising ever happens as one progresses in the (downward or upward) chain of dependence, the same type of entities/processes/mechanisms repeating themselves endlessly"* (p.570).

Nevertheless, Morganti (2015) has admitted that it is not always clear what makes a series boring or exciting. "*In Dehmelt's case, for example, new forces emerge at each layer and, additionally, a unique nearly-basic 'cosmon' of immense mass is postulated as occupying a precise, 'final' link in the chain. How much does this detract from the strength of the model in terms of general structure, simplicity and plausibility?"* (p.571).

[142] Another infinitist physical theory is S-matrix theory. McKenzie (2011) has argued that if S-matrix theory (a predecessor of the string theory that is now considered false) was true, it would support infinitism.

Infinitist explanations, provided by scientists, are supported by a minority of the scientific community. A question arises: are they unpopular because they are worse explanations than the foundational ones or because of our foundational prejudices? I assume the former. This is a big topic to discuss here, so I will not attempt to answer the above question in detail in this thesis.

Even if some infinitist physical theories are qualitative simpler than some foundationalist physical theories, those infinitist theories are considered false, and so, they cannot motivate the view that plausible infinitist physical theories are simpler. When we consider plausible infinitist and foundationalist physical theories, the foundationalist ones are methodologically preferable. Plausible infinitist theories are just plausible foundationalist theories that are modified to claim that the assumed fundamental entities are infinitely divisible after all. So, we have good methodological reasons to prefer current foundationalist physical theories.

I conclude that metaphysical foundationalism can be advocated because of methodological reasons. Of course, this does not make it definitely true. Whether foundationalism is true is an open question. New philosophical arguments or scientific findings may reveal the truth of infinitism. I think this is possible, but right now, we do not have any evidence that there are infinite chains in our world. From what we know so far, I believe that foundationalism is the best working hypothesis.

## 6.6. Conclusion

Schaffer and Trogdon have argued that metaphysical foundationalism is the only way to avoid vicious infinite regresses, and therefore, we have a good reason to endorse it. However, I argued that alternative sources of reality or causal capacity that avoid vicious infinite regresses are possible, even if metaphysical infinitism is true. These can be the direct physical cause of a grounded entity, the first physical cause, or God. Alternatively, it can be the case that there is no need for a source of RCC because our universe is eternal. Therefore, foundationalism cannot be motivated through this argument. Nevertheless, I argued that foundationalism can be motivated by mentioning methodological principles. This is the case despite recent objections.

## 7. Conclusion

In this thesis, I have argued for the truth of a simple ontology: only metaphysically independent, physical entities are elements of our ontology and sentences about higher-level entities are made true by them. The methodological principle of simplicity motivates the claim that there is only one level of being and this motivation remains even after philosophical inquiry. I presented six main arguments through this thesis for the truth of this ontology: (a) we can conceptually reduce higher-level entities to metaphysically independent, physical entities by combining resources from Heil's truthmaker theory and either the a priori entailment view or the a posteriori entailment view, (b) this conceptual reductive account can be used to object to the multiple-realisability argument, (c) there is an argument for the fundamental/derivative distinction thesis, (d) we can explain why sentences apparently about composite objects are made true by simples by proposing a truthmaker theory that uses resources from Cameron's truthmaker theory and van Inwagen's paraphrase strategy, (e) the intuition of mind-brain distinctness does not give us a good reason to endorse dualism, and (f) we have good methodological reasons to believe that there is an ungrounded level. Of course, this thesis does not end the inquiry about ontological issues. It just gives us some reasons to endorse a simple ontology, while we continue examining whether there is a reason to believe otherwise.

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