How to Deal with the Puzzle of Coincident Objects

by

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Abstract

The grounding problem is related to the puzzle of numerically distinct spatiotemporally coincident objects. Suppose Lumpl –a lump of clay– and Goliath – the statue – are created and later destroyed, simultaneously. They would share all of their physical and spatiotemporal properties and relations. But, Goliath and Lumpl have different modal and sortal properties, which would suggest they are distinct entities, while at the same time entirely co-located. This issue creates a puzzle and raises the question of how two distinct objects can be entirely co-located. Thus, on the one hand, monists (opponents of coincident objects) argue that even though we have given that thing two different names, we should keep in mind that Lumpl and Goliath, for as long as they exist, are entirely similar in terms of their physical and spatiotemporal structures. On the other hand, however, the lump and the statue have different properties. So, pluralists claim that based on Leibniz's law, Lumpl and Goliath would be distinct coincident objects.

Monists have challenged the possibility and plausibility of the occurrence of coincident objects by the grounding problem: they think that if we accept pluralism, we have to deal with the thorny problem of what grounds the alleged modal differences between Lumpl and Goliath, given that they are similar in all their physical and spatiotemporal aspects. Some monists suspect that pluralists will not be able to find plausible grounds by means of which to explain Lumpl and Goliath's modal (and other) differences, and therefore conclude that the grounding problem is a compelling reason to reject pluralism as an untenable approach towards the puzzle of coincident objects.

In this thesis, I attempt to show that the grounding problem, contrary to the false advertisement of some monists, does not seriously threaten the possibility and plausibility of the pluralism concerning the existence of numerically distinct spatiotemporally coincident objects. Underlining the plausibility and possibility of the pluralists' position, I specify most parts of this thesis as an investigation into how the grounding problem can be solved in support of pluralism. Various solutions to this problem have been proposed by pluralists from different standpoints. In general, most of these significant solutions, based upon general strategies they follow, can be classified into these two categories: the solutions which appeal to the supervenience relations (supervenience-based solutions), and the solutions which take primitivist approaches (primitivist strategies). My research proposes to take up the validity of the aforementioned strategies, and I assess them in relation to the pluralists' ability to solve the grounding problem. I argue that both supervenience-based solutions and the some of primitivist strategies – including the modal plenitude, sortal, and identity-based primitivism – are not winning strategies to settle the grounding problem. Considering the point mentioned, I put forward a new account of the primitivist solution to the grounding problem based on the Aristotelian notion of essence which I call 'essential primitivism'. I argue that the primitive essences of coincident objects can properly ground the modal and sortal properties making coincident objects distinct.

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My Teachers

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Chapter 1: The Puzzle of Coincident objects: The Grounding Problem

1.1.Introduction

Is it possible that two material objects simultaneously be composed of the same components? Are the statue and the lump of clay, or the ship and the collection of planks, the body and the person, two numerically distinct objects which are spatiotemporally coincident? These metaphysical questions have been a matter of dispute among metaphysicians working on mereology, constitution, and the nature of material objects.

The grounding problem[1] is related to the puzzle of numerically distinct spatiotemporally coincident objects. Take for example a statue and the lump of clay that composes it. The statue and the lump of clay have different properties, which would suggest they are distinct entities, while at the same time entirely co-located. Suppose Lumpl –a lump of clay– and Goliath – the statue – are created and later destroyed, simultaneously.[2] They would share all of their spatiotemporal properties and relations and would be subject to all of the same physical pushes and pulls. Any kick or wiggle administered to Lumpl would be administered to Goliath and vice versa. This issue creates a puzzle and raises the question of how two distinct objects can be entirely co-located.

On the one hand, it would appear as though there is only one thing located exactly where Lumpl is – a clay statue which exists for some time and then goes out of existence.

[1] This label is introduced by Bennett (2004a). The problem itself has been presented by other philosophers in other forms like the indiscernibility problem. See esp. Burke (1992), Olson (2001), Sider (1999), and Zimmerman (1995).
[2] The example is adopted from Gibbard (1975); suppose an artist makes a clay statue of the infant Goliath in two pieces, one the part above the waist and the other the part below the waist. Having made the two halves, she attaches them, and hence a new lump of clay (Lumpl) and a new statue (Goliath) come into existence. A day later, she separates the half or simultaneously smashes the statue and scatters its part into few smaller pieces of clay. Thus, the statue and its coincident lump of clay come into the existence and cease to exist at the same period of time (Gibbard, 1975, p 190).

Metaphysicians holding this view – called monists (one-thingers) – argue that even though we have given that thing two different names, we should keep in mind that Lumpl and Goliath, for as long as they exist, are entirely similar in terms of their physical and spatiotemporal structures. Thus, for monists, Lumpl is identical to Goliath.

On the other hand, however, there is a straightforward answer to this puzzle: the lump and the statue have different properties. If we follow Leibniz's law (the indiscernibility of Identicals[3]), the apparent differences between Lumpl and Goliath would make them distinct; Lumpl can survive being squashed into a ball, while Goliath cannot. Metaphysicians who believe that the names 'Lumpl' and 'Goliath' refer to two different entities are known as pluralists (multi-thingers[4]), and I will refer to them as such here. Pluralists hold that coincident objects differ in various ways, and the grounding problem is the problem of how to explain these differences. For instance, Lumpl and Goliath have different modal properties– Lumpl has the possibility of being squashed into a ball, whereas Goliath does not have such a possibility; or they belong to different sorts or kinds– the latter is a statue, while the former is a lump of clay; or they are different with respect to other properties, e.g., Goliath might be valuable, being well-made, being innovative, while these properties cannot be attributed to Lumpl.[5] The kind of

[3] The principle that holds if two objects are absolutely identical, then they must be indistinguishable from one another with respect to all of their properties.

[4] Bennett (2004a) uses the terms 'one-thinger,''multi-thingers.'

[5] This aesthetic or evaluative type of difference between coincident objects has been introduced by Kit Fine (Fine, 2003, p. 455). If we are not entirely anti-realist regarding these properties, the evaluative and aesthetic differences between coincident objects can be fully or partially ground on what ground the other differences between coincident objects. Goliath is beautiful and expensive in terms of being a well-made statue, and in this sense, such properties are rooted in the essential parts of Goliath which makes it fundamentally different from Lumpl. But the mechanism of grounding these types of evaluative and aesthetic properties might be metaphysically different from the sortal and modal properties. Based on realism about concrete objects, at least the modal features of these objects must be regarded as objective, mind-independent properties, while such a view does not necessarily lead us to treat evaluative and aesthetic properties in the same way. It is plausible and defensible to be realist about objects but to adopt anti-realist view about evaluative and aesthetic properties. Considering this issue, we can coherently hold that aesthetic and evaluative differences between coincident objects are not metaphysically differentiating, or based on a less radical view the mechanism of grounding these types of differences might be different from the mechanism

differences which tempt some philosophers to defend pluralism Bennett calls sortalish properties (Bennett, 2004a, p. 341).

If we assume that the pluralist approach is correct and Lumpl and Goliath do have different modal (and sortalish) properties, the problem is that there appears to be nothing that can explain their different modal (and sortalish) properties. It follows that one can ask – in virtue of what is Lumpl capable of being squashed into a ball, and Goliath not? If they share all of their physical and spatiotemporal properties, the challenge for pluralists, then, is to answer what grounds these differences. Pluralists argue that Lumpl and Goliath have different sortalish properties; thus, based on the Leibnitz's law, they are numerically distinct.[6]

Monists, however, are not inclined to accept this argument. The main reason for this disinclination might be the grounding problem. They think that if we accept pluralism, we have to deal with the thorny problem of what grounds the alleged modal differences between coincident objects like Lumpl and Goliath, given that they are similar in all their physical and spatiotemporal aspects. Some monists[7] suspect that pluralists will not be able to find plausible grounds through which explain Lumpl and Goliath's modal (and other) differences, and therefore conclude that the grounding problem is a good reason to reject pluralism as an untenable approach towards the puzzle of coincident objects.

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grounding sortal and modal differences, and it depends on our views regarding social ontology. If we adopt an anti-realist view about these types of properties, we cannot hold that they are fully grounded in the objective profiles of objects; rather the subjects or agents' mental states are involved in creating these properties. Investigating this issue requires an independent research project which goes beyond the scope of this thesis.
Throughout this thesis, owing to this fundamental distinction, I do not argue against any solution to the grounding problem in terms of its inadequacy to ground evaluative and aesthetic differences between coincident objects, and skip the explanation of them based on my favored solution.

[6] It is worth mentioning that it is merely one instance of a more general argument pattern that can be used by pluralists to justify their position.

[7] See: Sosa (1987), Heller (1990), Burke (1992), Zimmerman (1995) and Olson (2001).

1.2.Monism and the puzzle of coincident objects

Prima facie, one might suppose that only pluralists are obligated to deal with this challenge and overcome the grounding problem by providing a satisfactory explanation for the modal differences between Lumpl and Goliath. However, I argue that there is a serious challenge for monists to explain how Lumpl and Goliath are identical if there appear to be modal differences between them.[8] Monists are expected to provide a compelling explanation to show that these differences are not fundamental and do not metaphysically distinguish between the objects. In other words, they have to clarify that the apparent modal differences in cases like those of Lumpl and Goliath cannot be used to make a distinction between the objects. To reject pluralism, monists are expected to explain why there appear to be different modal properties between so-called coincident objects.

In this thesis, mainly in the second chapter, I intend to illustrate that monists face a serious challenge in showing that modal differences between coincident objects do not demonstrate that they are metaphysically distinct. Considering the challenge of the grounding problem for pluralists, if monists can coherently explain away apparent modal differences, and consistently maintain that coincident objects, e.g., Lumpl and Goliath, are identical, they can make their position more plausible and defensible than pluralism as they are not expected to find the ground for apparent modal differences.

In order to deal with this issue,[9] I propose that monists have two options at their disposal: they must either hold that the apparent modal differences between Lumpl and Goliath are not

[8] The main challenge for monists is to explain the modal differences among all of the sortalish ones. As Kit Fine mentioned monists would not recognize the differences in sort (Fine, 2008, p. 105); thus, they are also not expected to explain away the sortal differences.

[9] Some monists have taken a different approach towards the problem. These monists deny that Lumpl can survive being squashed. When Lumpl is squashed, it ceases to exist, at which point an entirely new lump of clay (composed of the same atoms) comes into existence. This strategy is sometimes called "the doctrine of dominant kinds" since the idea is that when an object belongs to multiple kinds, the object has the persistence conditions associated with

real, or argue that the modal differences do not entail that Goliath is not identical to Lumpl. The latter approach does not seem attractive[10] because it appears to violate Leibniz's law; however, if monists adopt the former strategy, they have two options to deal with modal differences. They might take a deflationary position about modality in general, and concede that there are modal differences between coincident objects. These modal differences, however, are not substantial features of the reality; they are generated based on linguistic or nominal conventions that we already accept. For example, it may be true to say that Lumpl is capable of being squashed and Goliath is not, but this is because the modal attributions here are dependent on how the object is described or referred to. Thus, there is only one object, and the modal differences depend on how the object is described or referred.

Another approach towards modality that monists can adopt to explain the apparent modal differences between Lumpl and Goliath is counterpart theory. Counterpart theory is an integral part of one of the more famous reductive accounts of modality, viz. modal realism advocated by David Lewis. By appealing to this theory, monists can maintain the identity of Lumpl and Goliath, and yet claim that Lumpl can survive being squashed into a ball while Goliath cannot. Such a possibility seems contradictory, but the worry is dispelled when the modal properties of the objects can be reduced to the categorical properties of their counterparts.

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whichever of the kinds "dominates" the others. Because *statue* dominates *lump of clay*, Lumpl is a statue essentially, and therefore, cannot survive ceasing to be statue-shaped. Burke (1994a, 1994b, 2004) and Rea (2000) defend the doctrine of dominant kinds. Burke and Rea believe that by refuting some of the plausible and intuitive theses about sortals or kind membership, it enables them to solve the puzzle of coincident objects in favor of monism. Despite the high cost that the proponents of this controversial view have to pay to hold this theory, there are serious doubts whether this view can settle the puzzle of coincident objects. To review critiques against this view, see Denkel (1995), Lowe (1995), Sider (2001, pp. 163–165), Stone (2002), and Korman (2015).

[10] The denial of Leibniz's law is advocated by Peter Geach (1962, 1967) who defends a view called *the relative identity theory*. Geach's central thesis is that there is no relation of absolute identity; there are only relations of relative identity. In particular, identity is always relative to a kind. I will not discuss this view in my thesis due to the unpleasant consequences associated with the denial of absolute identity. As many commentators have pointed out, this denial has severe implications for logic, semantics, and set theory. See Wasserman (2017).

My research proposes to take up the validity of the aforementioned strategies and assess them in relation to the monist's ability to solve the puzzle of coincident objects concerning the apparent modal differences between coincident objects. If monists successfully account for coincident objects' apparent modal differences as not fundamental, and therefore as not providing a basis for a metaphysical distinction, we can conclude that monism is a defensible view and can settle the puzzle of coincident objects. However, should monists who appeal to modal deflationism or counterpart theory not be able to account for these modal differences, then it can be assumed that there are real metaphysical differences between Lumpl and Goliath. In this case, if we can defend the idea that objects can have genuine metaphysical modal profiles (either primitive or derivative), the pluralist account for coincident objects will be supported. Even though this does not solve the grounding problem, pluralism is indirectly defended because the existence of at least genuine different modal properties does support the idea that Lumpl and Goliath are distinct objects. Furthermore, I will also make the case that modal deflationism and counterpart theory as proposals for solving the grounding problem of coincident objects create fundamental problems which make the theories untenable in the case of the puzzle of coincident objects.

In the second chapter, I discuss these two monistic general strategies regarding the puzzle of coincident objects more in-depth. I try to show that why realist monists, who believe in the existence of real mind-independent objects, cannot welcome deflationary positions about *de re* modal properties of objects, and why the counterpart theory is not philosophically appealing for them.

1.3.Pluralism and the grounding problem

Indeed, the failure of monism to successfully apply the foregoing strategies in reference to the apparent modal properties between coincident objects does support the possibility and

plausibility of the occurrence of coincident entities, but the grounding problem is still left. I do believe that it is reasonable to hold the sortalish differences between coincident objects, at least the most salient ones namely modal and sortal differences, stand in need of an explanation. Thus pluralists are expected to come up with a plausible solution to the grounding problem. Several solutions have been put forward to settle the grounding problem in support of pluralism. In general, most of these significant solutions, based upon general strategies they follow, can be classified into these two categories:[11] the solutions which appeal to the supervenience relations (supervenience-based solutions), and the solutions which take primitivist approaches (primitivist strategies). In this thesis, I will try to explore the current solutions which are in accordance with the mentioned strategies and assess their explanatory power with respect to grounding the sortalish differences between coincident objects.

1.3.1. Supervenience-based solutions

Proponents of these solutions hold that the grounding problem can be settled by appealing to some versions of supervenience relations. Put differently, they think that sortalish differences between coincident objects can be determined by their non-sortalish ones with the aid of the supervenience relations which can stand between them. There are various versions of supervenience in the literature which are coherently compatible with the occurrence of coincident entities; and based on each of them, a special supervenience-based solution can be put forward to support pluralism against the grounding problem. In general, all of these proposed solutions maintain that the sortalish differences between coincident entities supervene on the non-sortalish properties that they both share. Most of the proponents of this view mainly try to

[11] I do not mean that the mentioned classification is exclusive and exhaustive; I only enumerate the solutions which have been mainly discussed in the literature of the grounding problem. In addition, I have to mention that, in this thesis, I presuppose realism about objects and compositions; hence the pluralist solutions violating this assumption are not discussed in my thesis. To know more about these types of solutions see: Bennett (2004a, pp. 345-351) and Einheuser (2011).

argue that there are some varieties of supervenience relations allowing the occurrence of coincident objects, and pluralists can coherently maintain that the sortalish properties supervene on the non-sortalish ones.

Any plausible solution to the grounding problem should address this question that in virtue of what coincident objects differ in terms of their sortalish properties. In other words, the grounding problem is explanatory, and pluralists are expected to explain the differences between coincident objects. The compatibility of supervenience relation with the occurrence of coincident objects is at best the necessary condition that should be satisfied by every supervenience-based solution. Further steps should be taken by proponents of this strategy to explain why there are sortalish differences between coincident objects. But the problem is that there are compelling reasons showing the supervenience relation is not an explanatory apparatus. Thus, owing to this enormous difficulty, supervenience-based solutions cannot adequately address the grounding problem. In the first half the third chapter, this issue will be discussed in detail. The failure of supervenience-based solutions blocks the possibility of grounding sortalish differences to the non-sortalish properties or relations they both share.

1.3.2. Primitivist strategies

As was mentioned, the grounding problem is not powerful enough to rule out the possibility of coincident objects. Since the sortalish properties and relations cannot be grounded in the non-sortalish ones, it seems to be a plausible position for pluralists to maintain that some more fundamental and less controversial aspects of coincident objects can be taken as primitive or brute facts, and the rest of sortalish differences are explained in terms of the primitive features making the coincident objects distinct. Concerning the variety of differences between coincident objects, various primitivist solutions can be formulated. For example, coincident objects are

different concerning modal, sortal, identity, essential, aesthetic, evaluative aspects. Each of these aspects potentially can be a candidate of being the brute fact or the ground for the rest of differences; hence various versions of primitivism can be put forward. Besides the general criteria which help us to assess the cost and benefits of metaphysical theories or solutions such as simplicity, parsimony, precision, etc. the plausibility of each primitivist solution to the grounding problem can be assessed based on these two significant standards: first, the primitivist solution should be able to properly ground the rest of non-primitive sortalish differences between coincident objects, and second, taking one aspect of objects as brute facts or primitive is not only proposed to settle the grounding problem. Put differently, the primitivism, or the theory is constructed on it, should be applied to other philosophical discussions and puzzles. From the literature, the most significant forms of primitivism can be distinguished as follows: modal plenitude primitivism, sortal primitivism and identity-based primitivism, formal primitivism (hylomorphic solutions) and essential primitivism. In the second half of chapter three and chapter four, I discuss each of these accounts separately and explore whether they can satisfy the mentioned conditions or not.

1.3.2.1.The modal plenitude primitivism

Karen Bennett (2004a) argues that pluralists can coherently take the modal properties differentiating coincident objects as primitive, and ground other sortalish differences based on them. In order to provide a satisfactory modal primitivism, she proposes, pluralists should adopt the modal plenitude principle stating that any possible modal profile one can come up with, based on the microphysical (and, more generally, the non-sortal-related) properties $F_1,\ldots, F_n$ instantiated in region r, is itself instantiated in region r. Since for pluralists, differences in modal profile render differences in identity, each of those modal profiles is instantiated by a numerically distinct object in region r (Bennett, 2004, pp. 344–5). On this view, it is not a

primitive fact that there are many coincident entities in a given region. This fact is explained by the plenitude of available modal profiles, plus the stipulated fact that all such profiles are instantiated. What is primitive is which entity has which modal profile and the other differences can be grounded upon them.

I argue that the ontological cost of such a bizarre view –which asserts that for any of the relevant differences we find between coincident objects there exist coincident objects differing in those ways – makes it philosophically unattractive. In addition, even if a pluralist might be eager to pay the cost of adopting this peculiar ontology there is a type of sortalish differences which cannot be reduced or explained in terms of primitive modal profiles; thus, some sortalish differences remain ungrounded in this account of primitivism. As such, there are compelling reasons which render pluralists incapable of adopting Bennett's primitivist solution.

1.3.2.2.Sortal primitivism

Considering the distinction between modal and sortal differences among coincident objects, pluralists might hold that the more controversial case of the two is the modal properties. Here, the suggestion could be that we can take sortal properties as primitive, and ground the modal and other profiles upon them; the general strategy is to explain the modal differences between coincident objects by referencing the sortal differences between them. For instance, pluralists can appeal to the kinds that Lumpl and Goliath belong to – i.e., the statue and the lump of clay –to explain in virtue of what the former is capable of being squashed into a ball, while the latter is not. They might say Goliath is not capable of being squashed in virtue of being a statue, and not a lump of clay; Lumpl is capable of being squashed in virtue of being a lump of clay, and not a statue. Thus, these sortal differences between Lumpl and Goliath are supposed to explain a wide variety of modal differences between them.

This reply to the grounding problem is not satisfactory because the relation between sortalish properties and modal properties is less clear. Even though we can show that the sortal properties do not contain any modal features and accept this kind of primitivism, the main problem is that there are some counterexamples showing there are coincident objects which belong to the same sort, but they have different modal profiles; hence there may be modal differences which do not turn upon a difference in sort. Thus, sortal primitivism cannot adequately ground even all the modal differences distinguishing coincident objects.

1.3.2.3. Identity-Based Primitivism

In consideration of the inadequacy of the aforementioned primitivist solutions, Louis deRosset (2012) proposes a third primitivist approach which holds pluralists still can explain the apparent differences between coincident objects in terms of their identity properties. The question, then, is in virtue of what, for example, is Goliath a statue, or Lumpl a lump of clay? deRosset holds that the plausible explanation should involve certain circumstances under which Goliath was brought into existence, and in which it exists over the course of its career. So, pluralists need to consider in virtue of what circumstances Goliath is a statue. These circumstances may include the arrangement of the matter that makes up Goliath, the manner in which it was created, the intentions with which it was made, and many other such considerations. Let us call these circumstances C. deRosset asserts that C cannot be the whole explanation of Goliath's statuehood since Lumpl – which is not a statue – was created and exists in all the same circumstances. However, he holds that if we add the apparent differences between Lumpl and Goliath with respect to their identity properties to the story, we can find the satisfactory explanation. It is plausible for the pluralist to suggest that Goliath is a statue –rather than a lump of clay – in virtue of its identity properties (deRosset, 2012, pp. 183-184). By appealing to C, we can explain why Goliath is either a statue or a lump of clay rather than a window. Appealing to

C, however, will not explain why Goliath is a statue since the same explanation would also apply to Lumpl. What is supposed to explain why Goliath is a statue, according to deRosset, is its identity properties. As stated in this idea, part of what makes Goliath a statue is the arrangement of its parts, but another part of what makes Goliath a statue is its being the individual that it is. The same can be said for Lumpl. Ultimately, as deRosset believes, both the sortal and modal differences between Lumpl and Goliath are grounded in the apparent differences which obtain between Lumpl and Goliath with respect to their identity properties and C (deRosset, 2012, p. 185). Furthermore, deRosset argues that this explanation cannot go further, and monists do not have a legitimate claim to request any further explanation for why there are differences in identity features between Lumpl and Goliath.

I agree with deRosset that monists cannot legitimately ask for further explanation, but I do not think that deRosset can easily find a way of solving the grounding problem by appeal to apparent differences between Lump and Goliath with respect to their identity properties. As I explain, we can still ask why Goliath's modal profile is derived from its identity properties. Goliath is not capable of being squashed into a ball. An explanation is needed, according to the grounding problem, to show how such modal properties are grounded in Goliath's identity; it cannot be said that this feature is part of Goliath's identity because, given the argument presented above, we are not eager to accept modal profiles as primitive. Following this, taking identity properties as primitive does not settle the main concern of the grounding problem unless it can be shown how modal profiles are derived from identity properties. The second half of the third chapter of this thesis is specified to the mentioned primitivist approaches towards the grounding problem. I will explain them in detail and argue why they should not be taken as plausible solutions to the grounding problem.

1.3.2.4.Formal Primitivism: Hylomorphic solutions to the grounding problem

Some primitivist solutions in defense of pluralism have been proposed from the hylomorphic point of view. The hylomorphic approaches, in general, presume the Aristotelian idea which holds that every physical object is a compound of matter and form.[12] These solutions state while coincident objects share the same material components, they do differ in terms of formal aspects.

Proponents of these solutions believe that the grounding problem can be settled by the hylomorphic thesis that objects are composites of form and matter. Based on how the relation between forms and objects is explained, different hylomorphic solutions can be offered; albeit, all of them maintain that the formal differences between the coincident objects are the appropriate base to ground the salient sortalish properties between them. Hylomorphic solutions are primitivist in a way that they take one aspect of sortalish properties (formal differences) between coincident objects as primitive, and ground the rest of them based on it; however, the role of hylomorphic thesis (that objects are matter-form compounds) is expected to make these solutions different compared to other primitivist approaches in the literature.

Hylomorphic approaches to the grounding problem have been seriously challenged by Alan Sidelle (2014) posing a dilemma which intends to show that hylomorphists should either accept that this approach (regardless of what version of hylomorphism is accepted) does not solve the grounding problem, or accept that the solution is not proprietary to hylomorphism. Therefore, according to Sidelle, hylomorphic approaches cannot distinctively deal with the grounding problem. In chapter four, I will explain the discussion between the hylomorphic

[12] This doctrine has been dubbed "hylomorphism", a portmanteau of the Greek words for matter (*hulê)* and form (*eidos* or *morphê)*.

solutions and Sidelle's dilemma, and try to illustrate the difficulties undermining the opportunity of having a distinctive hylomorphic solution to the grounding problem.

1.3.2.5. The essential primitivism

In the rest of chapter four, I attempt to show that the grounding problem, contrary to the false advertisement of some monists, does not seriously threaten the possibility and plausibility of the pluralists' position concerning the existence of numerically distinct spatiotemporally coincident objects. The problem poses a difficulty for pluralists in virtue of what coincident objects have different sortalish properties. Nonetheless, I argue, this problem does not exclusively constrain pluralists since monists come across a somehow similar difficulty in grounding the modal and sortal properties that an object possesses. Thus, the grounding problem necessarily does not support monism over pluralism as in the basic level, the proponents of both views deal with the same question that in virtue of what an object has its sortal and *de re* modal properties. Underlining this significant upshot, I do believe that monism and pluralism's dispute over the existence of coincident entities cannot be settled just by the grounding problem, and the reasons to adopt pluralism or monism should be coherently supported from another perspective. To coherently ground the sortal and modal property that an object has, both monists and pluralists who believe in real composite objects should find a plausible model of primitivism.

Considering the mentioned point, I put forward a new account of primitivist solution to the grounding problem based on the Aristotelian notion of essence which I call 'essential primitivism'. In order to avoid the difficulties making the mentioned primitivist accounts unappealing, I argue that the primitive essences of coincident objects can properly ground their modal and sortal differences.

The notion of essence, according to this view, is whatever can eventually settle this fundamental question that *what a thing is*. Put differently, essences of things (whatever you mean by thing) reveal the nature of those entities or things. In giving an account of what a thing is, the metaphysical theories are providing an account of the essences of that entity.

To bridge the gap between the essences of coincident objects and their modal and sortal properties, I appeal to the non-modal conception of essence inspired by Kit Fine (1994a). Arguing against the adequacy of the modal account of essence,[13] Fine states that metaphysical necessities should be understood in terms of the essence. With the aid of this model of grounding *de re* modalities to essences, I try to show that the *de re* modal properties differentiating coincident objects can be grounded in their distinct primitive essences. More precisely, the facts concerning what is metaphysically necessary are grounded by the facts about the natures or identities of things. In addition to modal differences, most coincident objects differ sortally; they fall under different sorts or kinds. Goliath, for example, is categorized under the sort of being a statue, while Lumpl belongs to the sort of being a lump of clay. I will argue that if sortal properties are real, and make a metaphysical distinction between coincident objects, they should be treated like modal properties, and grounded in the primitive essences. Finally, I compare my favorite essential primitivism to its rival primitivist strategies discussed in the third chapter and argue why the essential primitivism is preferable.

[13] Roughly speaking, according to the modal account of essence, all of *de re* necessary properties of an object are essential to it.

Chapter 2: Monism and the Puzzle of Coincident Objects

2.1. Introduction

As it was mentioned in the first chapter, monists are supposed to explain away the apparent modal differences between so-called (according to them) coincident objects like Lumpl and Goliath, and still retain the idea that they are identical; monists may have two theoretical approaches at their disposal: modal deflationism and counterpart theory. Proponents of these views deny that there are real and objective modal facts in the world, and maintain that the modal differences between Lumpl and Goliath do not metaphysically differentiate them as two distinct objects. In this chapter, I briefly explain these views and mention some arguments illustrating why modal deflationism and counterpart theory are not winning strategies in defense of monism. The considerations I cite in this chapter, however, do not provide a knock-down argument against monism; instead, they mean to reveal the fact that the grounding problem is also a serious challenge for monists. If there are, at least, real *de re* modal differences between Lumpl and Goliath, or they are not able to explain away the apparent modal differences between Lumpl and Goliath, then why should we take them to be identical?[14]

2.2. Monism and Modal deflationism

Historically, the deflationist approach to modality has been a popular view in analytic philosophy, and different versions of this view have been proposed in this literature. Despite the differences between various accounts of deflationism,[15] all proponents of this view try to show

[14] It is beyond the scope of my thesis to rebut the deflationary and counterpart positions regarding modality. Thus, I do not evaluate these theories regarding their explanatory power in analyzing modal propositions and properties. I assume they are plausible modal theories; instead, I try to illustrate the problems that monists encounter when they appeal to such views regarding modality to solve the puzzle of coincident objects.

[15] One of the older versions of deflationism proposes that modal claims are not truth-apt but rather express our mental ability to conceive or not conceive of certain scenarios. This account of deflationism is not largely defended among contemporary deflationists as it comes across a serious and compelling objection known as the Frege-Geach problem. The Frege-Geach problem looks at how sentences which are not truth-apt can meaningfully occur as constituents of sentences containing truth-functional operators, or how they can appear in valid arguments given that

that the distinction between possible and necessary properties is dependent on us rather than the world. Most recently, Sider (2003; 2011) has defended a new version of deflationism called the Humean strategy. According to this position, modal truths and profiles are not metaphysically substantial features of the world. As Sider (2003; 2011) holds, our modal notions fail to carve reality at its joints, and necessarily true propositions are the logical consequences of a more-or-less arbitrary list of propositions chosen as axioms; the list includes mathematical truths, analytic truths, laws of metaphysics, natural kind propositions, and others, as well as modal operators which are not needed in fundamental inquiries. In this view, the world is fundamentally a non-modal place and has a certain fundamental structure, a structure which can be captured completely in terms of the ideology of physics, mathematics, and first-order logic (Sider, 2011, pp. 316-323). In short, modality is not part of the world's fundamental structure. As a result, the distinction between the necessary and the contingent is drawn by us rather than by the world.

In this chapter, I will focus on Sider's deflationary account of modality which rejects the traditional way of thinking about modality that regards modality as a substantial feature of the world. According to this view, that Sider dubs Modal Humeanism, there is nothing metaphysically significant about the distinction between the necessary and the contingent. Rather, where the line is drawn between them is completely up to us (Ibid, p 320). There are

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validity is the preservation of truth. Another well-known account of deflationism is called semantic or linguistic conventionalism. Roughly speaking, according to this view, necessary truths are settled by linguistic conventions (analytic truths which are true by virtue of their meanings), and contingent ones (synthetic truths) represent the facts in the world. For example, it's necessary that all bachelors are unmarried because we have adopted the linguistic convention that "bachelor" means "unmarried man". All necessary truths, according to this view, can be analyzed in the same way. The old version of this view as defended by Ayer (1936) and Carnap (1937/1950) has been criticized by Quine (1936/1951), who has attacked the distinction between analytic and synthetic truths and the notion of truth by convention. In turn, Alan Sidelle (1989) reconstructed this version of deflationism about modality to be seemingly immune from Quinean objections. However, as Sidelle (1989) himself asserts, he is conventionalist regarding both *de re* modality and objects, and this position is not interesting for those monists who believe that there is a real object which has conventional *de re* modal properties.

various ways we might draw the line, and no one, in particular, is objectively privileged. Whether a given proposition is necessary or contingent depends upon where we decide to draw the line.

According to Sider's modal Humeanism, a necessary truth is nothing more than a proposition that is both true and of a certain sort. 'Necessary' is just a term that we use for certain sorts of true propositions that we consider to be important. Consider, for instance, that our use of the term 'necessary' covers only the logical, analytic and mathematical truths. In this form of using 'necessary', to be necessary just is a truth of one of the aforementioned sorts. The claim that *2 + 2 = 4 is necessary* is analyzable as the claim that *2 + 2 = 4 is either a logical, analytic, or mathematical truth* (Ibid, p. 320).

According to Sider, *being necessary (possibly)* is, therefore, more akin to being *either being an electron or a cow* than it is to *being an electron*. Now, *being an electron* is an example of what David Lewis would call a natural property—a property which carves nature at its joints: "Sharing of them makes for qualitative similarity, they carve at the joints, they are intrinsic, they are highly specific, the sets of their instances are *ipso facto* not highly miscellaneous…" (Lewis, 1986, p.61)

In contrast to natural properties, unnatural properties[16] are the ones which fail to carve nature at its joints; sharing them fails to make for qualitative similarity: they are disjunctive, extrinsic, and the sets of their instances are often highly miscellaneous and gerrymandered. *Either being an electron or a cow* is an example of an unnatural property. Likewise, Sider would argue, there is no joint in nature which marks the division between those truths that are, or are

[16] To know about the distinction between natural and unnatural properties see: (Sider, 2011, chapter 3 and 6).

not, necessary. For Sider, the division between the necessary and the contingent truths is an unnatural one.

So far I have characterized Sider as putting forward a view concerning necessity in general; although Sider's main target is to provide a deflationary account of the notion of metaphysical necessity, as it is employed by philosophers, especially metaphysicians (Ibid, p. 316). For Sider, a metaphysically necessary proposition is a proposition that is both true and of a certain type, where the types are determined by the way the term 'necessary', is typically used by philosophers in the sense of metaphysical necessity (2013, p. 276). The list of the ways 'necessary' is typically used by philosophers includes all of the following kinds of propositions: propositions of logic, propositions expressed by analytic sentences, propositions of mathematics, natural kind propositions, propositions of metaphysics, and *de re* propositions which indicate the essential features of individuals. To be a metaphysically necessary proposition, a proposition needs to be nothing more than one of the types on this list.

Sider says that his account can also be stated more formally as follows. First, we start with a set of modal axioms, as well as a set of modal rules. The modal axioms are just certain true sentences that are chosen by us. The modal rules are just certain truth-preserving relations between sets of sentences and sentences that are, likewise, chosen by us. For each choice of modal axioms and modal rules that we might make there is a corresponding set of modal theorems. This set is the closure of the set of modal axioms given the particular modal rules we have selected. For the Humean, to be metaphysically necessary is to be a modal theorem. Given that the Humean doesn't take necessity to carve at the joints, there is no single necessary and sufficient required condition for inclusion as a modal axiom. Therefore we are free to choose whichever sorts of sentences as modal axioms that we like (Ibid, pp. 321-323).Thus, which

sentences count as modal theorems—and which propositions count as necessary—is simply a result of our more or less arbitrary decision to select as the modal axioms of a certain set of true sentences; while there is a variety of other alternative sentences. What about metaphysical possibilities? A metaphysically possible proposition is any proposition, p, the negation of which is not a logical consequence of the modal axioms (Ibid, p. 330).

Thus, Sider's Humean account can be characterized similarly. Suppose the sole modal rule is a first-order logical consequence. In that case, to be metaphysically necessary is to be a logical consequence of the set of modal axioms. Given the way that 'necessity' is typically used by philosophers, the modal axioms include all of the following: analytic truths, mathematical truths, true attributions of deep explanatory features to natural kinds, truths of metaphysics, and *de re* truths concerning essential features of individuals.[17] Similarly, the way of using 'possibility' can be defined. According to Sider, the logical truths do not need to be included as modal axioms. Since logical truths are logical consequences of any propositions, the logical truths will turn out to be modal theorems regardless of which sorts of truths are selected to be the modal axioms. Thus, a metaphysically necessary proposition is a logical consequence of the aforementioned types of truths. In that case, not every metaphysically necessary proposition must be a true proposition falling under one of the mentioned types. A proposition that is a logical consequence of two different types of modal axioms does not need to fall under any type of modal axiom particularly (Ibid, pp. 326-330). To be metaphysically necessary is to be a logical consequence of the modal axioms. For the theory to be reductive, the Humean must provide non-modal characterizations of both the modal axioms and the notion of logical consequence. Indeed,

[17] To know more in-depth about Sider's account of the notions of logical truth and logical consequence, analytic truth, mathematical truth, truths of metaphysics the necessary *a posteriori*, *de re* modality and essentialist truth, see: (Sider 2011, pp. 323-343).

it does seem that the Humean can provide these two tasks in every case. Sider provides sketches of how the various kinds of modal axioms may be characterized, and they all appear to be non-modal.

If we consider this theory of modality as true, then monists can plausibly claim that modal differences cannot metaphysically distinguish between so-called coincident objects. We can attribute different modal properties to objects based on the different adopted axioms. Based on this approach, pluralism can be rejected as modal differences cannot yield different objects. Therefore, *prima facie,* the Humean strategy seems a promising theory for monists. Some monists might be eager to accept this deflationary view about *de re* modality so they can endorse there is a real object which can be called by different names and modal properties. These modal profiles cannot metaphysically distinguish the object as they are not real, objective, and mind-independent properties. If monists adopt Humean strategy regarding *de re* modal properties, different – even contradictory – modal features can be attributed to the object as these modal properties are just a matter of conventions at the bottom; they cannot metaphysically change the object as they are neither rooted in the objective structure of the objects nor the world. Monists who adopt this deflationary view, put emphasis on this fact that *de re* modal properties of an object are drawn by us; having completely different and contradictory modal properties between Lumpl and Goliath does not distinguish them as two metaphysically numerical distinct objects.

Monists, who are interested to admit Sider's account of modal properties, should assert that there is a genuine mind-independent object, and its conventional *de re* modal properties cannot metaphysically influence it. But we will see that these two assumptions are not compatible. Therefore, Sider's modal deflationism, or any other similar deflationary view about *de re* modal properties, is not an appropriate tool for monists claiming 'Lumpl' and 'Goliath' are

different names for the same objects with various conventional *de re* modal properties. I am defending the view supported by Alan Sidelle (2010) that if modal properties are not real, mind-independent features of the world, like the view that Sider and conventionalists about modality claim, objects are thus also not quite mind-independent either. This suggests that this view is not consistent enough to support that there are real objects, and they also have conventional or non-fundamental *de re* modal properties. One can be a deflationist regarding modality and maintain that modal properties are not real, mind-independent features of the world; the proponents of this view have to accept that objects are thus also not mind-independent either (the view that Sidelle himself defends). According to this objection, to be a realist about objects is to accept realism about *de re* modal properties. If we are inclined to hold a deflationary view about *de re* modality, consequently, we must also embrace an anti-realist position about objects. Therefore, if this objection is right, which I think it is, monists, who are inclined to take modal differences as conventional, must accept that there is no objective and mind-independent object either. The problem is that Sidelle poses a serious obstacle for monists who believe that there is one object which has different conventional modal properties. I am doubtful that realist monists are eager to accept the position that objects themselves are also conventional and pay the cost of this anti-realist view in order to explain away the apparent *de re* modal differences between coincident objects. Here is the main argument against realist monists who are inclined to adopt Sider's Humean strategy about modality.

The argument that shows why conventionalism about modality should imply a similar view about objects is as follows: if a monist wants to take a realist view about objects and an anti-realist view about *de re* modal properties, she supposes that it is true to say that Goliath is

essentially or necessarily a statue, but having this essential (necessary[18]) property for Goliath is a matter of convention. Put differently, she is eager to assert that Goliath is an object and also a statue; nonetheless, the fact that Goliath is essentially a statue is drawn by us.

Suppose, Goliath is a statue, but it is a matter of convention that it is a statue necessarily. In other words, Goliath is a real object, and it is actually a statue, but we have made (based on our convention) that being a statue is a necessary or essential property for Goliath. In this situation, the name 'Goliath' refers to the object Goliath, and it carries a conventional essentialist commitment that Goliath is necessarily a statue. Also, suppose that we could have adopted a different convention, and based on that Goliath is not necessarily a statue. With regard to this convention 'Lumpl' refers to Goliath but does not carry the essentialist commitment that Goliath is necessarily a statue.

Now we can ask this question whether the referent of 'Goliath' is identical to the referent of 'Lumpl', or whether in both scenarios we have the same object which is referred to by two names which carry different essential conventions. Sidelle truly believes if we give a positive answer to these questions, as it seems the monists would, then this assertion implies that Goliath is neither essentially nor even conventionally a statue since it is clear that in second scenario Lumpl could cease to be a statue (as nothing necessarily restricts the materials to remain in the form of a statue).

The argument, in a nutshell, is as follows:

1. Goliath is essentially a statue.

[18] Following Kit Fine's non-modal concept of essence, I do think that essential and necessary properties are not the same. But, I think that deflationists are not interested in holding the distinction between essence and metaphysical necessity. Thus, for the sake of simplicity, necessary and essential properties are considered the same in this chapter.

2. There could have been conventions applied to Goliath in virtue of which it would not have been essentially a statue [by conventionalism about essences, and mind-independence about objects]

3. In some such situations, Goliath is not (or ceases to be) a statue.

4. Therefore Goliath is not essentially a statue (Sidelle, 2010, pp.110-111).

Sidelle tries to show that combination of premises 1 and 2 lead the proponents of realism about an object and anti-realism about its modal or essential properties to a contradiction. The above argument shows that these people must think that Goliath, viz. the referent of 'Goliath' as a statue, is something which could have had various essences by having different conventions applied to it. Indeed, the point is that an object cannot have its essence as a matter of convention; otherwise, it ceases to exist when different conventional essence is attributed to it. Objects are what they are in virtue of their essence, and if the essence of the object is taken from it, it ceases to be the very same object. Thus, the idea that Goliath could have been the very same object with different essence by hypothesis yields a contradiction. As a result, we should accept that Goliath itself is a product of our conventions; or, in general, if the essence is a matter of convention, the object is also conventional (Ibid, p. 112). Thus, this argument threatens metaphysicians adopting the deflationary or non-realist views regarding essence or *de re* modalities, while they remain realist about objects.[19]

[19] It might be objected that it is not a problematic consequence that Goliath as a statue and as an artifact might be regarded as a mind-dependent or projected objects, thus it will not be an odd result to welcome conventionalist view about such entities. This issue is a matter of controversy whether artifacts are projected objects; nonetheless, I do not think that this objection is a serious barrier for my purpose. The case of Lumpl and Goliath is one of the well-known examples of coincident objects, while there are many other cases of coincident objects which are not artifacts or the products of human activities.

Proponents of deflationary view about modal properties and realism about objects might reply to Sidelle's objection by considering various theories about ordinary objects. Sidelle himself addresses such a possible response to his argument (Ibid, p. 114). Opponents of Sidelle's view might object that in finding an answer to the main questions regarding what objects are or what are the proper conditions of composition, such as *when is there some matter in a region? Under what conditions is there a material object wholly occupying that region? etc*. we do not need to address modal properties in plausible answers; the answers are not supposed to be modal. The answers to these questions, which can provide the actual conditions for the existence of an object, are not supposed to commit us to accept that the actual objects have genuine modal properties because these theories only provide the general view regarding the actual positions of objects, and remain silent about objects' modal properties. Thus it seems that these conditions do not determine which modal theory should be accepted in accordance with a plausible theory about objects. Considering this fact, a monist metaphysician might hold that since the modal properties do not play a significant role in questions pertain material constitutions of objects, we can have a realist view about objects, and defend conventionalism about modality. What theories of objects describe is that if objects have modal properties, meeting these actual conditions must suffice for them, so conventionalists about modality think this sufficiency must be set up conventionally (If these conditions are satisfied we have a composed object which meets modal conditions conventionally). The object is real and mind-independent while its modal properties are determined conventionally.

Even though this position regarding the insignificant role of modal properties in the actual material constitution of objects is true, the main concern is still in force. The fact that these theories about objects might be defended without taking modal theories into account does

not imply that we can reconcile any modal theory to our theories of objects. It is true that the actual conditions of an object might say when and how the object comes into the existence but there are questions which are not answered only by these actual conditions. For example if we ask about the identity or the nature of the object, what makes it the object that it is, or questions regarding persistence conditions of objects, its identity through change or time or in our own case whether coincident objects are the same, all remained unanswered (Ibid, p. 116).

According to the actual conditions both Lumpl and Goliath might be considered as objects, but the actual conditions do not determine whether they are identical or not as their differences seem to be modal. The conventionalists about modal or essential properties would say that the answers to these questions are the matter of conventions, and these properties are not as real as the actual properties that the mind-independent objects have, but they do neglect that they cannot easily hinge any modal theory to the theory of material objects or composition.

Suppose our conventions make Goliath essentially a statue; conventionalism about essence allows us to say that we could have had different conventions about Goliath. If Goliath is a mind-independent object and being a statue is conventionally the essence of Goliath, can we say that it could have been a lump of clay based on different conventions, and still remains the very same object? The actual conditions of the existence of Goliath as a statue *per se* do not allow us to give a positive answer to this question. Goliath, as a statue, cannot be the subject of the all modal or essential predicates. But for proponents of realism about objects and conventionalism about modality, it seems it has to be – as we have stipulated that Goliath is essentially a statue. If the bearer of the modal properties is the mind-independent object, again we come across the mentioned inconsistency, because modal or essential features are regarded as too external to the object in that view, while these features are intrinsic and internal. Thus, if we

adopt the idea that modal or essential properties of objects are stipulated by us, we have to give up our assumption that Goliath or any other objects as the bearer of modal properties are real and non-conventional objects. Sidelle holds the rationale behind the wrong intuition that we think conventionalism about modality can consistently be combined with realism about objects is that "we are taking an entirely static perspective, just looking, as it were, at the momentary spatial boundaries of the object, and ignoring the fact that, for the object, there are answers to the questions posed above, and we simply assume, or hope, that these answers can be provided conventionally. But on examination, the allegedly mind-independent object cannot be the referent of the term in the modal statements, cannot be the subject of the modal properties." (Ibid, p.117)

Modal and essential properties are not like some mind-dependent or projected properties like some aesthetic or evaluative concepts such as being beautiful, being expensive, etc. Goliath as a real object might be ascribed as a beautiful statue. Beauty might be regarded as a mind-dependent or projected property for Goliath without causing the mentioned problem. It is not problematic to suppose that there is a mind-independent object but its beauty is a mind-dependent or somehow conventional property, because it is plausible to say that without any minds in the world there might be an object but as there is no mind to ascribe the beauty to the object, so its beauty is a projective or mind-dependent property. Monists, who think that they can hold similar view modal or essential properties, think that all of these mind-independent properties are on a par in this case. But we can separate beautiful object from its objective properties, while we cannot divorce what is essentially an object from its essence since if the object loses its essence, it would simply be a different object; thus the essence of a real object

cannot be conventionally added to it. Thus if we think that modal properties are conventional, we have to take the similar view about the objects which are the bearer of these properties.

To sum up, this argument shows that Sider's deflationary view or any other deflationary view about modality cannot be a tenable approach for monists who believe that there is a real object with different modal or essential properties. If the modal properties of Goliath or Lumpl are mind-independent, both objects are mind-independent as well. Therefore, I think that due to this serious obstacle, Sider's deflationary modal theory cannot be a proper tool for monists who believe in real mind-independent material composite objects.

2.3. Monism and Counterpart theory

As mentioned in the introduction, another approach that might be attractive for monists to explain away the apparent modal properties between coincident objects is counterpart theory. In the metaphysics of modality, counterpart theory is an alternative to standard (Kripkean) possible-worlds semantics for interpreting quantified modal logic, particularly *de re* modalities. Counterpart theory still presupposes possible worlds but differs in certain important respects from Kripkean view. This theory is an integral and complementary part of David Lewis's reductive account of modality.[20]

[20] Lewis defines modal notions as below:

P is necessary iff it is true in every possible world.

P is possible iff it is true in some possible world.

In this case, there is no difference between Lewisian account and other versions appealing to the concept of possible worlds in order to analyze modality. The discrepancy begins when Lewis clarifies what he means by a possible world. Thus, to achieve his reductive aim, he only needs to explain possible worlds based on non-modal elements. He uses set theory and classical extensional mereology to build his genuine realism about possible worlds. Lewis's mereological assumption, called unrestricted mereological composition, says: for every collection of objects, Xs, there is an object which is the sum of Xs. Another assumption of his theory is that there is an equivalence relation that X is spatiotemporally related to Y, i.e., we can take all the things divided into groups such that each entity belongs to exactly one group (the mereological sum of some concrete entities). Within every group, there is a spatiotemporal relation between the members, and outside the groups, there is no such relation (groups are completely isolated from each other). Each of these groups is called a 'possible world'. So, a possible world is an object which contains its members as its inhabitants, and this world is mereologically built based on its members which are spatiotemporally related to each other, and what is not part of this world has no access to it. Lewisian

To give a reductive analysis of modality, both the notions of a possible world and truth in a possible world must be defined non-modally. Lewis (1986) tries to satisfy this condition by identifying possible worlds with maximal mereological sums of individuals such as our actual concrete world which is the mereological sum of individuals that stand in some spatiotemporal relation to us. Thus, possible worlds are similarly concrete entities. Lewis holds that for every possible way that the actual world could have been, there is some Lewisian possible world that is that way (Lewis, 1986, section 1.6). Lewisian possible worlds are totally isolated and non-overlapping. At first glance, it seems that Lewis's theory is unable to explain the truth and falsity of *de re* modal sentences accurately because no individual exists in more than one world, as there is no spatiotemporal relation between the worlds; furthermore, all the denizens of these worlds are world-bound. Lewisian account of a *de re* claim, however, does not require that things have to travel across worlds, but rather, that there are counterparts of actual individuals in other possible worlds that bear the burden of *de re* modalities. An object is someone or something's counterpart if it is conspicuously similar to it. Thus, in Lewisian terms, saying *Socrates is contingently a philosopher* means that there is a possible world (W_1) in which Socrates' counterpart – the most similar person to Socrates in (W_1) – is not a philosopher.[21]

Considering the pluralist argument for the non-identity of Lumpl and Goliath, monists can appeal to counterpart theory to show that the pluralist conclusion is not necessarily derived from the premises that Lumpl and Goliath have different modal profiles. Lewisians (those who believe in modal realism) can reject the pluralist modal argument since for any token instance of such an argument, counterpart-theoretic interpretation shows either that the argument is invalid

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possible worlds are concrete entities like our own world. Such possible worlds are the mereological sum of all the concrete entities they contain, like our own world that is the mereological sum of our surrounding and us. See: (Lewis, 1986, Chapter 1).

[21] See: Lewis (1968 and 1986, section 1.2; chapter 4) on counterpart theory; Lewis (1973-1986) gives possible-worlds analyses of other modal notions.

or the premises are false (Divers, 2008, p 121). Counterpart theory can invoke different counterpart relations for the same objects based on relevant similarity criteria; it can explain the modal differences between Lumpl and Goliath based on the categorical properties of the denizens of other worlds without requiring any differences between them in our world. 'Lumpl' and 'Goliath' refer to the same object but might invoke different counterparts when different similarity metrics are taken into account. Lewisian counterpart theoretic response accepts Leibniz's law and holds that Lumpl is identical to Goliath, and yet also claims that one can survive being squashed and the other cannot.

Underlining the convenience of counterpart theory in explaining *de re* modalities, John Divers (2008) believes that the puzzle of coincident objects can be settled in favor of monism with the aid of Lewis's counterpart theory. Divers holds that the proponents of counterpart theory can reject the pluralist argument (Lumpl and Goliath are modally distinct, so they are not identical) since for any token instance of such an argument, counterpart-theoretic interpretation shows either that the argument is invalid or that it is not the case that both of its premises are true (Divers, 2008, p 121).

According to Divers, two cases are generated since there are two relevant possibilities concerning the counterpart relations that are invoked in the truth conditions ascribed to the premises of the argument. Either one counterpart relation might be invoked twice in the interpretation (univocal case) or two different counterpart relations can be considered (equivocal case). In the first (univocal) case, we invoke the same counterpart relation in the interpretation of both premises; then we have:

Lumpl has an origin-counterpart which is squashed into a ball.

Goliath does not have an origin-counterpart which is squashed into a ball.

So, Lumpl is not identical to Goliath.

This argument is valid. But both premises cannot be true simultaneously. According to this interpretation, Lumpl has an origin-counterpart which is squashed into a ball, and if this premise is true, the second cannot be. Based on counterpart theory the first premise can be intenerated in this way: Lumpl has an origin-counterpart which is squashed into a ball. It means that there is a world, W_1, which is completely similar to our world W until the moment that Lumpl comes into existence. Thus in our world, there is an object Lumpl, and there is a counterpart of it $Lumpl_1$ in W_1. Lumpl and $Lumpl_1$ are similar in every aspect including features of origins, except for the fact the Lumpl is in the form of Goliath in W since the time Lumpl comes into existence, while $Lumpl_1$ is squashed into a ball in W_1 since that time (Ibid, p 122).

There is another application of counterpart theory; we can invoke different counterparts for both premises. In this (equivocal) case, we invoke two different counterpart relations for the premises to rule out the validity of the argument: Lumpl has an origin-counterpart which is squashed into a ball. Goliath does not have a career-counterpart which has the same property. So, Lumpl is not identical to Goliath. This invocation makes the arguments invalid. The rationale behind this invalidity is that an object may be similar in one respect to something that is F, but dissimilar in some other respect to everything that is F. Therefore, based on the above argument, Lumpl has an original counterpart which is squashed into a ball, but does not have a career-counterpart with the same property (Ibid, 122).

Lewis's counterpart theory can invoke different counterpart relations for the same objects based on relevant similarity criteria and explain the modal differences between Lumpl and

Goliath based on the categorical properties of the denizens of other worlds without requiring any differences between them in our world. "The core thesis of the inconstancy of *de re* modal predication is precisely, that there is no unique (*de jure*) correct interpretation of any such sentence-type: no single counterpart relation which is guaranteed to figure in the truth condition of every token of any one sentence-type which involves *de re* modal prediction. … Lewisian[s] will say that the appropriate interpretation is multivocal: it is appropriate to assign different counterpart relations in interpreting the respective premises." [Original Italics] (Ibid, pp. 122-123)

Considering grounding problem, the Lewisian counterpart theory's response accepts Leibniz's law, holds that Lumpl is identical to Goliath, and yet claims that one can survive being squashed and the other cannot. Based on modal realism and counterpart theory, the modal profiles of Lumpl and Goliath are explained in terms of the categorical properties of the real concrete individuals existing in other concrete possible worlds. Therefore, Lumpl and Goliath do not have different genuine modal properties rather their counterparts bear the burden of the modal features ascribed to them. Thus, they are not distinct objects.

Counterpart theory allows monists to hold that Lump and Goliath are the same but might invoke different counterparts when different similarity metrics are taken into account. Thus Goliath or Lumpl in our world has an origin-counterpart which is squashed into a ball, but Goliath doesn't have career-counterpart which is squashed into a ball because all the career-counterparts of the object are in the shape of the statue. Regardless of the problems which Lewis's modal realism and his counterpart theory have to struggle with, the main obstacle that prevents the majority of philosophers from adopting Lewis's modal theory is the higher cost of his bizarre ontology.

Divers shows that the Lewisian account of modality can explain away different modal properties between Lumpl and Goliath from a monistic point of view. But the main problem here is that Lewis's counterpart theory and modal realism, which are linked together, seem completely counter-intuitive as both theories are committed to a very bizarre ontology including the existence of real and concrete very peculiar entities such as talking donkeys or flying pigs, etc. Even Divers, who argues that Lewisian account of monism is defensible with the aid of counterpart theory, is not willing to accept Lewis's modal realism (Ibid, 120); however, he does not address this issue throughout his paper namely the issue of how we can apply the counterpart theory to the puzzle of coincident objects without being committed to the ontology of modal realism. If counterpart theory can be successfully detached from modal realism and still keeps the advantages of that theory (being able to invoke different counterparts for the same object), Divers's approach seems to be a plausible solution for the puzzle of coincident objects from a monistic point of view.

Considering this problem and maybe some others,[22] monists like Divers are inclined to adopt counterpart theory without being committed to Lewis's ontology, i.e., concrete worlds and their denizens (counterparts). In the rest of this chapter, I will argue that monists cannot appeal to alternative counterpart theories in order to deal with the puzzle of coincident objects. The reason for this is that in the plausible alternative counterpart theories, modal notions are treated exactly in the same vein as they are in deflationary or conventionalist approaches.

If monists are not inclined to accept Lewis's ontology and his peculiar account of counterpart theory, they are expected to clarify what they mean by counterparts. If counterparts

[22] To review some of the more well-known objections against Lewis's modal realism see: (Sider, 2003, pp. 194-200).

are not concrete, they might be regarded as abstract entities. The following paragraphs explore more in detail about the nature of abstract counterpart theory, and whether it can be regarded as an applicable tool for monists to solve the puzzle of coincident objects or not.

Since the inception of Lewis's counterpart theory and his reductive account of modality, many philosophers have found his explanatory view attractive in terms of being qualitatively parsimonious. The theory is qualitatively parsimonious as it is purported to cut down the number of various types of entities it posits; while Lewis's theory does not need to pare down the number of instances of kinds it postulates as it is not quantitatively parsimonious (Lewis, 1973, p 87). Lewisian worlds are as concrete as our actual world, thus no new kinds of entities are introduced to crowd his ontology qualitatively. "The ontological aspects of Lewisian theory is in one respect familiar and straightforward: There are at least as many individuals as there are possible ways for an individual to be (and any sum of individuals is an individual) There are sets of individuals and sets of sets and so on up. There is nothing else." (Divers, 2008, p.123)

The ontological simplicity of Lewis's theory in a sense that we only need to adopt spatiotemporal individuals and sets in our ontology on the one hand, and the explanatory power of his theory in reducing modal properties into categorical ones, on the other hand, have attracted many metaphysicians; nonetheless, few of them have been eager to welcome the ontology of modal realism, i.e., the existence of real concrete possible worlds and possible entities as their denizens. Thus, many attempts have been made to put forward semi-Lewisian reductive accounts of modal properties which do not necessitate the existence of real spatiotemporally isolated possible worlds and their denizens, i.e., counterparts. These alternatives to modal realism, in general, are called the ersatz approaches. Roughly speaking, the ersatzers construe talk about a

possible world as talk about some *ersatz* object.[23] Thus, the truth or falsity of a modal statement is explained by appeal to surrogates or proxies for possible worlds, rather than to genuinely existing worlds themselves. Thus, *It is possible for Socrates to be a carpenter* is true not because of a concretely existing alternate world and Socrates's counterparts, but rather because there are some ersatz world and ersatz counterparts of Socrates who are carpenters. Proponents of ersatzism try to regard possible worlds and counterparts as abstract entities, the entities which are allegedly much easier to believe in (compared to Lewis's concrete worlds).

According to Lewis's counterpart theory, for any object O and any property P, O is possibly P if and only if O has a counterpart that is P. Moreover, O is essentially P if and only if all of O's counterparts are P. Based on Lewis's account, the modal *de re* claims such as *Socrates is possibly a carpenter*, are analyzed in this way that if and only if there is someone in a concrete world spatiotemporally isolated from ours—one of Lewis's "possible worlds"—who, is appropriately like Socrates, is a carpenter.

Proponents of modal ersatzism have found counterpart theory attractive. However, they are not willing to accept Lewis's modal realism, and try to reject the concrete account of counterparts; instead, they propose an abstract version of counterpart's theory. In order to put away the Lewisian terminology, we can paraphrase the above analysis of *de re* modality as follows: *Socrates is possibly a carpenter* is analyzed as *Socrates has an abstract counterpart who is a carpenter*. Therefore, ersatzers are expected to put forward similar analysis regarding modality particularly *de re* modal properties, and the analysis should be on a par with Lewisian counterpart theory in terms of explaining *de re* modality and keep the advantages of this theory without being committed to modal realism.

[23] 'Ersatz' is a German word which literally means replacement or substitute.

Different versions of ersatzism have been proposed to accomplish the mentioned task; Lewis himself addresses few versions of this view in the third chapter of his book *On the Plurality of the Worlds* and raises some serious objections against such attempts. One proposal, which Lewis labels 'linguistic ersatzism', identifies worlds with sets of sentences.[24] According to this view, a possible world in which donkeys talk and pigs fly can be identified with a set of sentences that includes the sentences 'donkeys talk' and 'pigs fly,' in addition to other sentences describing the rest of what occurs in this possible world. Possible individuals inhabiting these possible worlds may be constructed as well—as sets of formulas containing free variables. For example, a talking donkey might be constructed as a set containing, among others, the formulas 'x is a donkey' and 'x talks'. Lewis raises some serious objections against these views as they are not related to the aim of my thesis, I do not go through the discussions between the proponents and opponents of modal ersatzism, but the main concern regarding these views is the circularity objection. As Lewis and some other metaphysicians have pointed out, most versions of modal ersatzism including linguistic ersatzism suffer from the problem of circularity in reducing and analyzing modal notions in terms of non-modal abstract entities such as sets.[25]

One of the most recent and promising ersatz accounts of possible worlds and counterpart theory which is purported to meet the circularity and other objections against earlier proposed

[24] To review the literature, in this case, see Lewis (1986, chapter 3), which criticizes linguistic ersatzism as well as other ersatz reductive theories. See also: Bricker (1987); Heller (1998); Roy (1995); and Sider (2002) for responses Lewis's objections.

[25] Lewis's argument showing the circularity of linguistic ersatzism is as follows: A set, S, of sentences can be regarded as an ersatz world iff S is maximal, i.e., for each sentence, either it or its negation is a member of S. But the problem is that we cannot say that a proposition is possible iff it expressed sentence by some in some ersatz world, for this would count every (expressible) proposition as possible—every sentence is a member of the set of all sentences, which is obviously maximal. The proposition there is a round square would turn out possible. To prevent this problem, we must restrict our attention to the ersatz possible worlds, where an ersatz world is possible iff it would be possible for all the members of the set to be true together. But this characterization of an ersatz possible world makes use of the notion of possibility. Therefore, a possible-worlds analysis of modality that makes use of ersatz possible worlds in this way is circular (Lewis, 1986, pp. 154-156).

accounts of ersatzism is the version defended by Mark Heller (1998). Briefly reviewing related parts of Heller's theory about modality and his account of counterpart theory, in the rest of this chapter I evaluate this claim whether monists, who are not inclined to accept modal realism, can accept this allegedly non-circular abstract reductive account of counterpart theory. I try to raise a serious objection that why this theory cannot be attractive for monists.

Using an account of worlds sketched by Quine (1968), Heller proposes a view according to which a world is a set of ordered pairs. In Quinean account, the first member of each ordered pair is an ordered quadruple representing a particular point in the space-time manifold. The second is either a 1—representing that point as filled—or a 0—representing that point as empty. Heller slightly changes the Quinean account so that he can allow for properties which do not supervene on distributions of being filled or being empty. Heller states the second member of each ordered pair should be a set that represents a property; a different set represents each property that can be exemplified at a point in space-time (Heller, 1998, p. 316). Thus according to Heller's theory, a possible world would be like the following set:

SET S: {<<132, 3, 45, 5>, {3, 48}>, <<4, 118, 11, 51>, {7, 19}>,...}

Such worlds represent things as being a certain way as Heller tries to analyze modal claims in terms of what these possible worlds represent (Ibid, p. 315). In Heller's view, the property of being possibly a carpenter for Socrates is analyzed as his being represented as a carpenter in some of these abstract possible worlds. Heller's analysis of *de re* modality is a version of counterpart-theory since a world represents Socrates as being a carpenter in terms of

this fact that among all the members of this world, a series of quadruples represent Socrates as a carpenter; that series is Socrates's counterpart in that world.[26]

Thus, in these views, possible worlds are supposed to be non-modally represented by sets.[27] This question is raised how a set, as described in Heller's theory, can represent modal properties such as necessities and possibilities. Heller's brief response is that sets represent modal properties only because we use them to do so. In other words, the fact that which sets represent which modal properties depends on how the sets are interpreted "if no one had ever interpreted sets as possible worlds, then sets would not have represented alternative possibilities." (Ibid, p. 315) I think this aspect of Heller's theory or any other similar accounts of counterpart theory makes these theories so similar to the deflationary views I mentioned in previous parts of this thesis. Thus, the aforementioned objection against those views is applicable here. This means that modal properties such as *Socrates is possibly a carpenter or Lumpl has the possibility of being squashed into a ball* are analyzed in terms of set-theoretic representations. The fact that which sets represent which possibilities entirely depends on our interpretations, and these claims explicitly mean that the nature of modal claims especially *de re* modal properties like Socrates possibly being a carpenter is a function of how we interpret sets. Thus, in this view,

[26]As Socrates's counterpart's counterpart need not be Socrates's counterpart, the main aspect of counterpart theory, i.e., intransitivity of transworld identity holds.

[27] I suppose that Heller's account of ersatz worlds is a non-circular reductive analysis of modal properties and does not come across the serious problems that its predecessors confronted. Trenton Merricks (2003) voices a series of objections seriously casting doubt on the plausibility of Heller's view in analyzing modal properties in terms of sets. As it is beyond the scope of this thesis to address them here, I just assume the plausibility of Heller's view to show that even though this theory is able to analyze modal claims successfully, it cannot be applied to the puzzle of coincident objects in defense of realist monism. I intend to show that as in Heller's view abstract counterparts, which play the role of *de re* modal properties, are defined as set theoretical entities, and only with the aid of interpretations sets can be regarded as the bearer of *de re* modal properties, consequently *de re* modal properties are mind-dependent and again we come across Sidelle's arguments against compatibility of realist theories of objects and anti-realist theories of modal properties. If Merricks is right, his objections pose more serious challenges for philosophers who are inclined to accept such ersatz counterpart theory to solve some philosophical questions.

based on various interpretations of sets, the same modal property of an object will be analyzed in terms of various sets. One interpretation analyzes Socrates's being possibly a carpenter with the existence of a set, while another interpretation analyses the same property in terms of a distinct set, and these analyses and interpretations make the nature of modal properties of an object dependent on interpreters and consequently mind-dependent properties. In other words, make modal or essential properties of an object mind or linguistic dependent or conventional, and again I think this abstract counterpart theory even though it might be able to overcome the objections such as circularity or being able to analyze modal properties properly, cannot be combined with realist views about objects. If interpretations play a crucial role in analyzing the modal properties of an object like Socrates or Goliath, these modal properties are not objective and mind-independent properties. Therefore, considering Sidelle's arguments, these abstract counterpart theories cannot be compatible with the views that treat ordinary objects as objective entities.

If Heller is right, the nature of every modal property depends on something that we do. It also makes the modal properties of an object arbitrary. It is odd to say that being able to be squashed into a ball for Lumpl and lack of this property for Goliath are both the result of our interpretations. It seems that in Heller's analysis of *de re* modality, "in a world with no interpreters, the sets that actually are possible worlds go uninterpreted...since no worlds exist in worlds without interpreters, nothing is possible (or necessary) in those worlds. So if there had been no interpreters, there would have been no modal truths." (Ibid, p. 314)

Heller addresses this concern as a challenge to his theory and tries to modify it by saying: "The mistake in this challenge is to assume that which sets count as worlds in a world w depends on the interpreters in w. Even in the actual world, there may, for all I know, be people who have

assigned different interpretations to the sets that I have used as my worlds… This does not mean that those sets, under the modified Quinean interpretation that I have been discussing, cannot serve to ground the modal discourse of all of these people. What we want is some objects that are well suited to the role of possible worlds. Those objects exist even in the worlds with no interpreters; and they are possible worlds because it is we who are using them as such." (Ibid, 315)

Heller means that as sets once interpreted, they are possible worlds; and so, once interpreted, we can truly say that wherever those sets exist—even in worlds without interpreters—there are alternate possibilities. I don't think that this response would be helpful for us as the sets in themselves are not able to show the modal properties, and finally a sort of interpretation, maybe in other worlds, must be combined with them, and again there should be interpreters in other worlds so that the sets can represent modal properties. This fact obviously makes modal truths mind-dependent.

Here this question can be raised that why sets cannot represent worlds and modal properties objectively and without interpretations. Is it possible to defend a version of Heller-like counterpart theory which considers the set-theoretical possible worlds objectively rather than as a result of interpretations? If yes, the main obstacle for the monists is removed. Defenders of this suggestion might say modal claims, for example, *Socrates is possibly a carpenter* is analyzed as the existence of a set S, and such a set intrinsically and based on its structures can show the modal properties. But, it is not clear how sets (of ordered pairs of ordered quadruples and sets of numbers) are supposed to represent modal properties objectively. It is odd to think that a set in itself intrinsically and objectively without any sort of interpretation represents a modal property. It might be put forward that sets can represent various possibilities in virtue of their structure,

and in this sense they are objective, I am doubtful that this might be a good solution to make Heller's counterpart theory objective. If we say that the structure of sets, without any interpretations, shows the modal properties we need to explain how a set in itself is distinguishable from the others, set can be differentiated with their members. But again the members of alleged sets do not indicate which set might be regarded as a representation of a *de re* modal property. Without interpretations, there is nothing in a set to show, for example, *Socrates possibly is a carpenter*, is an intrinsic feature of that set. There is no privileged feature in a set *per se* that could distinguish that set from the others in representing modal claims; sets cannot objectively and intrinsically represent modal properties based on their structures. There is no privileged feature among a series of quadruples that could distinguish it as the property of being possibly a carpenter for Socrates. Only an interpretation can ascribe such features to a set. Put differently, sets without interpretations represent nothing regarding the modal features of objects. Thus, this issue shows that we cannot make Heller's set-theoretic counterpart theory an objective theory for *de re* modal properties by neglecting the role of interpretation so that we can make this theory defensible against Sidelle's objections, and consequently, this theory cannot properly explain away the apparent modal differences between coincident objects.

2.4. Conclusion

The failure of monism in applying the aforementioned strategies creates a serious challenge for monists. They cannot coherently hold that Goliath and Lumpl are identical, and remain realist about the single composite object occupies the region of space-time, but maintain that the modal or essential features between Goliath and Lumpl are not metaphysically differentiating. If modality is a genuine feature of the world, and Goliath and Lumpl are modally different, monists cannot easily reject the possibility and plausibility of the existence of numerically distinct spatiotemporally coincident objects. If modal profiles are genuinely

differentiating and coincident objects differ modally, why should we think pluralism is untenable? Monists are expected to find a plausible response to this question if they want to reject the occurrence of coincident objects. Indeed, the burden of proof, therefore, is the obligation of monists. Thus, if modality is an objective feature of the world, pluralism can be embraced as a tenable view to settle the puzzle of coincident objects. Even though the grounding problem is a real barrier for pluralists, it does not refute pluralism. However, as mentioned earlier, pluralists not only have to explain the modal differences between the Lumpl and Goliath, but are expected to explain sortal and other differences, and the grounding problem concerns all of these differences. Pluralists have suggested some solutions to deal with this challenge. In the rest of the thesis, I review some of them related to the aim of my thesis.

Chapter 3: Pluralism and the Puzzle of Coincident Objects

3.1. Introduction

Indeed, the failure of monism to successfully apply the deflationism or counterpart theory in reference to the apparent modal properties between coincident objects does support the possibility and plausibility of the occurrence of coincident entities, but the grounding problem is still left. It is intuitively reasonable to hold that the sortalish differences between coincident objects, at least the most salient ones namely modal and sortal differences, stand in need of an explanation. Thus pluralists are expected to provide a plausible solution to the grounding problem. Several solutions have been put forward to settle the grounding problem in support of pluralism. As was mentioned in the first chapter, most of these proposed solutions can be classified into two categories: supervenience-based solutions and primitivist strategies. In the first half of this chapter, I try to show that why appealing to supervenience relations cannot appropriately solve the grounding problem. In the rest of the chapter, I examine the adequacy and explanatory power of three versions of primitivist solutions, specifically: modal plenitude, sortal, and identity-based primitivism. I argue that these primitivist accounts come across serious difficulties making them philosophically unattractive for pluralists.

3.2. Supervenience relation and the grounding problem

Earlier generations of pluralists have tried to solve the grounding problem by maintaining that modal and sortal differences (sortalish properties) between coincident objects can be determined by their non-sortalish ones. These philosophers have applied various forms of the supervenience relation to the puzzle of coincident objects. The first objection mentioned to this position was that pluralists cannot appeal to the supervenience relation. However, as Rea (1997), Sider (1999), and Zimmerman (1995) have argued, there are some forms of supervenience relations that pluralists can adopt. In this part, I will review these approaches towards the

grounding problem and show that why supervenience-based solutions, in general, cannot appropriately solve the grounding problem.

The term 'supervenience' seriously entered into the literature of the twentieth-century analytic philosophy to support the doctrine of physicalism. Some philosophers found the supervenience relation to be an interesting tool which would help them to explain the relation between moral and natural properties, or how mental characteristics depend on the physical ones. Thus, they claim that moral properties supervene on natural properties or mental characteristics supervene on physical ones such as the properties of our nervous system. Roughly speaking, supervenience can be defined as follows: "a set of properties *A* supervenes upon another set *B* just in case no two things can differ with respect to *A*-properties without also differing with respect to their *B*-properties. In slogan form, 'there cannot be an *A*-difference without a *B*-difference'." [Original Italics](McLaughlin and Bennett, 2014)

In general, two main versions of supervenience relations have been introduced into the literature: local and global. Local versions of supervenience deal with the relations between the A-properties and B-properties of an object by holding that A supervenes on B just in case any two objects that are B-indiscernible (i.e., have exactly the same B-properties) are also A-indiscernible. In contrast, the global versions of supervenience concern the relations between the distributions of A-properties and B-properties in worlds of objects. Both local and global versions of supervenience come in two sub-categories, weak and strong (Ibid).[28] As the notions

[28] The weak version of local supervenience means that B-indiscernible objects within a world are A-indiscernible, whereas the strong version requires that all B-indiscernible objects, even those from different possible worlds, are A-indiscernible (McLaughlin and Bennett, 2014). Also see: Horgan (1993) for more formal definition. Similarly, as I will explain, we have strong and weak notions of global supervenience. This example might clarify the differences the local and global versions of supervenience: according to the local versions (both strong and weak) physically indiscernible objects must also be mentally indiscernible. Thus, my physical properties determine

of global supervenience are the main concerns of this chapter, I will mostly focus on the varieties of this version in more detail.

As it was mentioned in the first chapter, the main objection to the view that there are distinct coincident objects like Lumpl and Goliath is the grounding problem. How can Lumpl and Goliath differ in their modal or other sortalish properties, given that they are exactly similar in terms of physical aspects? What grounds their difference in modal properties? In virtue of what do they have distinct sortalish properties? Some monists formulated the grounding problem in terms of supervenience failure. If Lumpl and Goliath differ, for example, in their modal properties, proponents of supervenience relations hold that these modal (or all the sortalish) differences between Goliath and Lumpl must be determined by their qualitative non-modal (non-sortalish) properties and relations, such as their subatomic structure. Given that Lumpl and Goliath – as coincident entities – share exactly the same subatomic structure and non-sortalish properties and relations, what can determine the modal (or any other sortalish) difference between them? Monists raised this objection that if two physical objects constructed in precisely the same way out of qualitatively identical parts, they should have the same modal properties under similar conditions. Assuming that modalities are determined by non-modal properties (the assumption that was accepted among the proponents of supervenience relations), and the fact that Goliath and lump have the same physical and spatiotemporal properties and relations, these monists believe that Lumpl and Goliath cannot differ modally or in any other respect. Mark Heller states: "I do not see how the objects in question could differ in their modal properties.

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my mental properties. Global versions are weaker, because they allow that the physical properties of objects throughout the world are relevant to determine mental facts. Some philosophers introduced a third subcategory for global supervenience and called it intermediate global supervenience, which is defined between the weak and global notions. See McLaughlin and Bennett (2014), Bennett (2004b), Shagrir (2002).

There must be some non-modal basis for the modal differences between the lump of clay and the statue."(Heller, 1990, p 31) Given this similarity, it seems that nothing could ground the differences in persistence and modal properties between them. Defenders of supervenience relations think that the facts about persistence and modality are not brute facts, but rather have some basis in other facts; and surely these other facts will be shared by coincident entities. Thus, the possibility of coincident objects seems absurd in light of the supervenience relation. According to these people, many (if not all) of the intrinsic qualitative properties of macrophysical objects supervene on the intrinsic properties and relations exemplified by their microphysical parts. An object's mass and shape, for example, seem to supervene in this way; or mental properties of an object (if it has them) or its sortal properties are all supposed to supervene on the microphysical parts as well.[29] If we accept the doctrine of supervenience, then *prime facie* the possibility of coincident objects can be dismissed, and some monists found it as a compelling argument against pluralism.[30] Thus, *prima facie*, it seems that the doctrine of microphysical supervenience has extremely undesirable implications for pluralism, and pluralists cannot appeal to this philosophical notion in order to explain how sortalish properties, in general, are grounded upon the non-sortalish ones, or they are expected to deal with the puzzles arisen

[29] Rea calls this view the doctrine of microphysical supervenience. According to this doctrine, roughly speaking, intrinsic qualitative properties of an object supervene on its microphysical structure, and the microphysical structure of an object is just the total set of intrinsic properties and relations exemplified by the parts of that object (Rea, 1997, p. 367). As specified by the doctrine of microphysical supervenience, persistent conditions or modal and sortal properties of objects supervene on microphysical properties and relations, then if Lumpl and Goliath have the same microphysical structure, and if this doctrine is true, how can they have different modal or sortal properties? Or consider another example of coincident objects; Socrates and the lump of tissue which constitutes him. According to pluralists they have the same microphysical parts and relations but they have different mental properties, for example Socrates believes that he fell in love when he was 23 years old, while the lump of tissue does not have the same mental property, whereas based on the doctrine of microphysical supervenience such possibilities seem absurd, how it is possible that two things with the same microphysical parts and relations have different intrinsic properties since the latter properties are supposed to be supervened upon the former ones.

[30] This problem has been alluded in various ways in Heller (1990, Chapter 2), Burke (1992), and Zimmerman (1995).

from applying supervenience to the case of coincident objects. As we see in the next part, Michael Rea (1997) and Theodore Sider (1999) selected the second option.[31]

3.2.1. Weak global supervenience and coincident objects

Considering the distinction among various versions of supervenience, Theodore Sider (1999) argues that by appealing to the weak version of global supervenience, we can accommodate the idea that there are coincident distinct objects. Sider contends that the weak notion can be used to refuse the argument against coincident objects, namely, the argument that coincident objects cannot be compatible with the idea that the modal properties be grounded in the non-modal ones (sortalish properties be grounded in the non-sortalish ones). Sider holds that we can assert that sortalish properties of objects ground on their non-sortalish ones if "grounding" is understood in terms of the notion of weak global supervenience.

As explained by Sider (1999) supervenience principles affirm a kind of functional dependence of one sort of fact on another in forms of indiscernibility *in such-and-such* respect entails indiscernibility *in thus-and-so respect*. The claim that, for example, *mental properties supervene on the physical ones* means that the mental properties are functions of the physical ones; in other words, physical indiscernibility implies mental indiscernibility (Sider, 1999, p.

[31] Michael Rea has (1997) has proposed a similar strategy with different terminology and notions. Considering various versions of supervenience suggested by Dean Zimmerman (1995), Rea tried to use the doctrine of microphysical supervenience to solve the grounding problem. Rea held that the first step is to find a coincidence-friendly definition of supervenience. Following Zimmerman (1995, p. 90), Rea holds that there are some definitions of supervenience which are compatible with the possibility of coincident objects. The definition of supervenience relations that led some monists to rule out the possibility of coincident objects, in words of Zimmerman is a coincidence-hostile definition of supervenience which implies objects having the same microphysical structure must share all of the same intrinsic qualitative properties. Thus, the possibility of coincident objects is dismissed as Goliath and Lumpl which have the same microphysical structure, they must share all of their same sortal and modal properties. But hopefully, there is another coincidence-friendly definition of supervenience at the disposal of pluralists which can be combined to the existence of coincident objects. As the strategy is the same, for the sake of brevity, I do not go through Rea's supervenience-based solution in this thesis.

913). The notion of weak global supervenience (where A and B are sets of properties and relations) is defined as follows:

A weakly globally supervenes on B $=_{df}$ any two possible worlds that are world-B-indiscernible are also world-A-indiscernible (Ibid, p. 915).

To illustrate this definition, Sider tries to explain the notion of world-indiscernibility. Sider holds that worlds are indiscernible when their domains are isomorphic. "Where A is a set of properties and relations, say that a function, f, is an A-isomorphism iff f is one-to-one, and for every n-place relation, R, in A (count properties as 1-place relations) and any n objects in f 's domain, those n objects stand in R iff their images under f stand in R." (Ibid, p. 915) and then, he defines world-indiscernibility as follows:

W_1 and W_2 are world-A-indiscernible $=_{df}$ W_1 and W_2 are possible worlds, and there is some A-isomorphism from the domain of (i.e., set of objects existing at) W_1 onto the domain of W_2 (Ibid, p. 915).

The main idea of weak global supervenience is that functional determination can happen at the global level. "Roughly, the idea is that whether or not a given n-tuple of objects stands in a certain relation in A is determined, not only by what properties in B those objects have and what relations in B they bear to each other, but also by what relations in B they stand in to other objects, and also by what properties and relations in B are instantiated by their worldmates. This seems correctly describable as a kind of global supervenience because the instantiation of the supervening properties and relations are determined based on the instantiation of the base properties and relations across all of the objects throughout the possible world in question. To make the intuitive idea clear, let us consider the special case of one-place object sequences,

which may be taken to be their sole members. When objects (one-place object sequences) are globally A-indiscernible, they are alike with respect to A in a very strong sense: they not only have the same properties in A, but also have the same "world perspective" with respect to A. If one bears relation R to some object with property P (where R and P are members of A), then so must the other. If one's world contains exactly 15 objects with property P, then so must the world of the other." (Ibid, pp. 916-917)

The notion of weak global supervenience can be understood better if we compare it to the strong notion of global supervenience, which can be defined as follows:

A strongly globally supervenes on B $=_{df}$ any object sequences (perhaps from different possible worlds) that are globally B-indiscernible are also globally A-indiscernible (Ibid, p. 917).

According to the strong notion of global supervenience, all of the mental properties that an object might have are determined, not only by the physical properties that the object have but also by the physical properties other things have, by what physical relations the object bears to those objects, and by the physical relations those objects bear to each other. In other words, objects with the same physical world perspective must have the same mental world perspective (Ibid, p. 917).

Sider thinks the notion of weak global supervenience enables pluralists to approach the mentioned problem that monists raised against the possibility of coincident objects. Sider holds that this notion empowers those who believe in coincident objects to develop a tenable solution for the grounding problem, and he tries to show that this notion of supervenience can play the role of the notion of grounding that pluralists are expected to provide. According to Sider, we can say facts about A-properties are grounded in facts about B-properties when these two

conditions are satisfied: 1. A supervenes on B (based on one of the current definitions of supervenience), and 2. facts about B-properties are in some sense (whether ontologically or explanatorily) "prior to" facts about A-properties. He, nonetheless, acknowledges that the second condition cannot be easily satisfied as the notion of supervenience, in general, does not have the elementary requirements of the notion of (ontologically or explanatory) priority. Ontological or explanatory priority is irreflexive and asymmetrical:[32] nothing can be ontologically prior to itself or be ontologically prior to something that is also ontologically prior to it, but supervenience is reflexive and non-asymmetrical. Supervenience is reflexive: for any set of properties A, there cannot be an A-difference without an A-difference. In addition, supervenience holds non-asymmetrically; supervenience is compatible with cases in which the A-properties asymmetrically depend on the B-properties, but it doesn't require asymmetric dependence since it is also compatible with cases in which the A-properties supervene on the B-properties and the B-properties supervene on the A-properties (McLaughlin and Bennett, 2014).

Considering the second condition as a barrier, Sider holds that we should not be worried about this issue since the grounding argument against coincidence appeals only to the first condition of grounding, i.e., supervenience. As was mentioned, monists, who believe in supervenience relations, argue that based on supervenience principles, sameness in one respect entails sameness in some other respect; thus it is supervenience principle that seem to be violated by coincident objects like Lumpl and Goliath, which differ in their modal properties despite their intrinsic, compositional, and relational similarity. Thus, Sider aims to meet this objection that the coincident objects would violate the global supervenience of *de re* modal properties upon a certain another set of properties and relations.

[32] See: Kim (1984)

As Sider mentioned, the strong version of global supervenience is violated by the fact that coincident objects (Lumpl and Goliath) differ sortalishly on basic qualitative properties and relation that they share with each other. Suppose f is a function which maps every object from the world in question onto itself except that it permutes Lumpl and the Goliath. As these coincident objects share their all of their physical and spatiotemporal properties and stand in the same physical and spatiotemporal relations to other objects, f is a non-sortalish-isomorphism, and hence the worlds containing Lumpl and Goliath are globally non-sortalish-indiscernible; but the worlds are not indiscernible in terms of modal and other sortalish properties that Lumpl and Goliath have, so strong global supervenience is violated. But the weak version of global supervenience works properly in such cases (Sider, 1999, p. 930).

Sider shows that weak global supervenience can only be violated by a pair of two possible worlds, so by itself, the possible world, W, contains Lumpl and Goliath does not violate any weak version of global supervenience relation. And we do not need to suppose, another world besides W, to make a pair of two possible worlds which would refute the supervenience relation. In order to keep the relation of weak global supervenience, it should be true that any possible world that is non-sortalishly indiscernible from W, must contain two objects: one with the sortalish properties of Goliath, the other with the sortalish properties of Lumpl so that there would be a sortalish isomorphism between this world and W.[33]

[33] Because a world must contain such objects for there to be a modal isomorphism between it and w, and adopting this view is perfectly acceptable for the defender of coincidence.

Therefore, Sider concludes that pluralists have a defensible position by his suggested approach, as they do not need to accept ungrounded or brute modal (sortalish) properties, which do not in some way supervene on non-sortalish properties (Ibid, p. 931).[34]

3.2.2. Why Supervenience-based solutions cannot solve the grounding problem

Sider's weak notion of supervenience or Zimmerman and Rea's concept of a coincidence-friendly doctrine of microphysical supervenience can each be regarded as a successful response to the puzzle of coincident object if and only if the notion of supervenience can play the role of metaphysical explanation, namely shows any sorts of dependence between A and B as relata of supervenience relations. But there is convincing evidence which shows supervenience, especially the mentioned versions which are applicable to coincident entities, cannot play such a role.[35]

Obviously, as was mentioned, supervenience relations do not have the necessary condition of dependency, i.e., ontological priority since supervenience is reflective and non-asymmetrical. Another argument showing how supervenience violates the ontological priority

[34] Sider holds that his suggested strategy is mainly useful for the pluralists who take the supervenience principles seriously, for those who simply reject the need for any supervenience principles between modal and non-modal properties of an object, this argument is not appropriate. Sider, however, thinks that rejection of such supervenience principles is implausible, and does not necessarily solve the grounding problem (Sider, 1999, p. 931).

[35] Considering the supervenience of mental properties on physical ones, Jaegwon Kim (1998) states: "what this shows is that the mere fact (assuming it is a fact) of mind-body supervenience leaves open the question of what *grounds* or *accounts* for it – that is, why the supervenience relation obtains between the mental and the physical" [Original Italics](Kim, 1998, p. 9). Kim maintains that is the various rival theories about the mind-body problem are consistent with the supervenience of mental properties to physical ones. Reductionism (type-identity), emergentism, (multiple) realization, some forms of epiphenomenalism, and perhaps even Cartesian interactionism are all committed, Kim argues, to mind-body supervenience. But, he continues, "if mind-body supervenience is a commitment of each of these conflicting approaches to the mind-body problem, it cannot itself be a position on this issue alongside these classic alternatives" (Ibid, p. 9). Kim means that this issue that various rival or even contradictory theories are compatible with the supervenience of mind on body implies that supervenience is not in itself an adequate explanation of the mind-body problem. "We must conclude, then, that mind-body supervenience itself is not an *explanatory theory*; it merely states a pattern of property covariation between the mental and the physical, and points to the existence of a dependency relation between the two. Yet it is wholly silent on the nature of the dependence relation that might explain why the mental supervenes on the physical." [Originals Italics] (Ibid, p. 10)

and does not hold dependency is as follows: when we assert that A-properties ontologically depend on B-properties, the relationship is expected to reveal to us that something has its A-properties in virtue of B-properties, but a supervenience claim does not automatically entail an 'in virtue of' claim. According to the general definition of supervenience, for example, for any property P, being P supervenes on being ~P: two things cannot differ with respect to being P without differing with respect to being ~P. But, it is odd to say that something has the property of P in virtue of being ~P! (McLaughlin and Bennett, 2014) Furthermore:

> "Notice that properties everything has necessarily and ones that nothing can possibly have supervene, with the same sort of necessity, on *any* property whatsoever. The property *being self-identical* supervenes on the property *being an antique*; the property *being both a kangaroo and not a kangaroo* supervenes upon the property *being dusty*. The reason is simple enough. No two things can differ with respect to either necessary or impossible properties, period; thus no two things can differ with respect to such properties without also differing with respect to *B*-properties, for any property set *B*. Nothing can be both a kangaroo and not a kangaroo, so no two things can differ with respect to that property, and thus no two things can differ with respect to that property without also differing with respect to being dusty, or being purple, or being a steam engine, etc. But it is not the case that being both a kangaroo and not a kangaroo is ontologically dependent upon being dusty." (Ibid) [Italics are original]

Besides these arguments which cast doubt on the power of the notion of supervenience, in general, as an interesting explanatory tool which might be ontologically or metaphysically worthwhile, there are some compelling arguments which particularly aim the notions of supervenience at the puzzle of coincident objects.[36] Karen Bennett (2004b) and Oron Shagrir

[36] Reviewing similar discussions in philosophy of mind shows that the weak global supervenience of mental on physical properties is compatible with the existence of a world that is physically indiscernible from our world, but in which some plants are conscious, and some human beings are not. Likewise, the weak global supervenience of modal properties on non-sortalish ones in is consistent with the existence of a world which is non-sortalish-indiscernible from our world but in that world there is an object with the non-sortalish properties of the Eiffel tower and the modal properties of Lumpl, and another entity with the non-sortalish properties of Lumpl and the modal properties of the Eiffel tower; or weak global supervenience permits the existence of worlds in which Lumpl has the modal properties of the Eiffel tower and vice versa. As Shagrir shows, weak global supervenience does guarantee that some entities will have the modal properties of Lumpl and Goliath in a non-sortalish-indiscernible world. But it does not determine which entity in that world will have the modal properties of Goliath in our world. These examples show that weak global supervenience cannot be regarded as a notion of ontological dependence (Shagrir, 2002, p.176).

(2002), separately have developed sorts of arguments to rebut Sider's supervenience-based solution. They persuasively argue that the notion of weak global of supervenience, contrary to Sider's belief, does not adequately capture a notion of dependency, and for this reason, it cannot be a satisfactory response to the grounding problem. As Bennett and Shagrir's arguments are partly similar, in this chapter I just review the arguments developed by Bennett.

Sider's notion of weak global supervenience or Zimmerman's coincidence-friendly notions of supervenience only shows that supervenience of sortalish properties on non-sortalish ones is perfectly consistent with the fact that Lumpl and Goliath are distinct coincident objects. While what is needed to rebut the grounding problem is a sort of metaphysical explanation to show us in virtue of what Lumpl has some modal properties that Goliath does not have.

Sider himself is aware of this worry that weak global supervenience is not an evident dependence relation, and he develops the following case as a possible objection and tries to find a response to it: let's suppose that locomotives and cabooses are only found attached to trains and that every train has exactly one of each. The objection shows we can accurately say that the property of being a locomotive weakly globally supervenes on the property of being a caboose, but it seems odd to admit the former property depends on the latter. Sider responses to this objection by pointing out that the notion of 'dependence' is as ambiguous as the notion of 'supervenience'. As we have many versions of supervenience relations (e.g., local and global), there are various types of dependence. Thus, "one must take care not to conclude that no form of dependency holds in a particular case just from the fact that one form of dependence conspicuously fails to hold…it isn't clear that there is no sense in which being a locomotive depends upon being a caboose... any two worlds that are alike with respect to the number of

cabooses are alike with respect to the number of locomotives. This itself seems like a sort of dependency!" (Sider, 1999, p. 932)

As Bennett holds, weak global supervenience, defined by Sider based on the notion of isomorphism, can guarantee that the worlds which are indiscernible in terms of the number and kind of B-things which stand in the same B-relations, will be indiscernible in terms of the same number and kind of A-things and stand in the same A-relations to each other in all of those worlds. But this fact does not prove any genuine sort of dependency between A-things and B-things since weak global supervenience does not provides any sorts of explanation which reveal in virtue of what the A-properties are distributed over the B- properties. Weak global supervenience only holds that "for each subset of the B-properties, there is a subset of the A-properties such that in every possible world in which the former is instantiated, the latter is too. That is all the guarantee amounts to, and it should not be misunderstood as anything more." (Bennett, 2004b, pp. 517-518)

As I mentioned earlier, this worry is not limited just to the weak global notion of supervenience. There is a general worry regarding all forms of supervenience relations as notions which at best hold certain patterns of property covariation, while they are silent about why those patterns hold, and about the precise nature of the dependency involved. Bennett points out that weak global supervenience is more problematic than the other forms of supervenience. It does not just fail to tell us the deep truth about why a certain pattern holds but fails to guarantee us a coherent pattern in the first place. "If it is the case that all B-indiscernible things are A-indiscernible, or even are correlated with A-indiscernible things in some regimented way, then we can at least get a grip on the fact that there is an explanation of why that pattern holds. But since WGS [weak global supervenience] does not say anything like that, we cannot get any such

grip. It is very hard to see how there could be any explanation of a bare WGS claim." (Ibid, p. 518)

Consider the example that Sider mentioned about locomotives and cabooses. Bennett articulates that the sort of dependency that can be found in this example does not turn out from the mere weak global supervenience that holds between locomotives and cabooses, rather it comes from the existence of some background fact or stipulation that lays out how the B- and A-properties are connected. Sider makes some further stipulations like that locomotives and cabooses are only found on trains, and that every train has exactly one of each.

These stipulations which are added to the example might provide some sorts of dependency in the example, "it entails a clear function from the number of cabooses in a world to the number of locomotives – in particular, that the numbers are always equal - and also entails that not just anything can have the property being a locomotive" (Ibid, p. 518), but this dependency does not follow from the weak global supervenience holding between the locomotives and cabooses. The weak global notion of supervenience in itself does not provide a satisfactory explanation which shows how a given number of locomotives is correlated with some number of cabooses and places no restrictions on which things might get the property of being a locomotive. In other words, the power that weak global supervenience without some sort of dependent stipulated facts like those that Sider's brought into the example, is too weak to play any role of dependency between A- and B- properties or relations. Thus, we can say weak global supervenience is not itself a real dependency relation, and cannot deal with the puzzle of coincident objects.

To sum up, the fundamental reason which shows why supervenience approaches are not satisfactory for pluralists is that the supervenience relation is not able to explain how sortalish properties are determined by non sortalish ones. For this reason, supervenience-based solutions cannot meet the challenge posed by the grounding problem since this problem is explanatory. Pluralists are supposed to explain the differences between Lumpl and Goliath, and supervenience is not able to do that. As supervenience does not state explanatory relations, holding the consistency of pluralism with supervenience does not solve the grounding problem. The consistency of the occurrence of coincident objects with some plausible supervenience relations is at best a necessary condition, not the sufficient one.

3.3. Primitivism and the grounding problems

As was mentioned in the first chapter, the grounding problem is not powerful enough to rule out the possibility of coincident objects. Since the sortalish properties and relations cannot be grounded in the non-sortalish ones, I think that it is a plausible position for pluralists to maintain that some more fundamental and less controversial aspects of coincident objects can be taken as primitive or brute facts, and the rest of sortalish differences are explained in terms of the primitive features making the coincident objects distinct. In the following sections, I examine three forms of primitivist solutions (modal plenitude, sortal, and identity-based) are discussed in detail, and I argue why none of these three forms of primitivism is a tenable response to the grounding problem.

3.3.1. Modal plentitude primitivism

The grounding problem concerns what kind of fact grounds the differences between coincident material objects. Considering the failure of some available solutions to the grounding problem, Karen Bennett (2004a) argues that the only option that pluralists can accept is a primitivist view which holds that the differences between coincident objects are not in fact

grounded in anything at all. Bennett, however, is more likely to call this approach a dismissal of the problem than a solution to it (Bennett, 2004a, p. 352).

Instead, Bennett (2004a) proposes that pluralists should endorse a form of primitivism about the sortalish properties, and find a plausible way to defend this idea that at least some parts of sortalish properties are plausibly brute or ungrounded and the rest of them ground on these brute parts (Ibid, p. 354). According to Bennett, pluralists can coherently assert that whenever non-sortalish properties are instantiated in a spatiotemporal region – as it is in Goliath's region – there then exists in that region both a lump of clay and a numerically distinct statue, both of which nevertheless share all their microphysical characteristics. They differ in sortal properties, and consequently in their persistence conditions and other aspects of their modal profiles. There is, however, no further explanation of why there are some of these differences. One cannot reduce the fact that Goliath – but not Lumpl –could not survive being squashed into a ball – whereas Lumpl could –, to any other fact; these modal differences are taken as primitive. Nonetheless, Bennett believes that pluralists should just explain why there exist distinct – but coincident objects – possessing different sortalish properties in the same region. She holds that the pluralist can find such an explanation based on the view she calls the modal plenitude principle stating that any possible modal profile one can come up with, based on the microphysical (and, more generally, the non-sortal-related) properties $F_1,\ldots, F_n$ instantiated in region r, is itself instantiated in region r. Since for pluralists, differences in modal profile render differences in identity, each of those modal profiles is instantiated by a numerically distinct object in region r. In other words, for any consistent way of assigning "is necessary" or "is possible" to the non-sortal related properties in a region, there is an object in that region with precisely that modal profile (Ibid, pp. 344–5). On this view, it is not a primitive fact that there are

many coincident entities in a given region. This fact is explained by the plenitude of available modal profiles, plus this presupposition that all such profiles are instantiated in that region. What is primitive is which entity has which modal profile and the other differences can be grounded upon these modal profiles.[37]

The modal plenitude principle holds that there is an object for each possible combination of modal properties. As each region is full in this way, nothing is needed to explain this issue that in virtue of what any particular object has the modal properties that it does. According to this principle, all of the complete modal properties possible in a given spatiotemporal location are instantiated in that region. There is no uninstantiated modal profile in the region, thus there is no need to find appropriate criteria which explain why only some of the possible modal properties are instantiated in the given region. If all of the possible modal profiles are instantiated, the question simply does not arise.

Bennett considers a question that might arise about what exactly plenitude amounts to. How many objects are aligned with the possible combinations of modal properties? How many possible ways of distributing 'necessary' and 'possible' over the non-sortalish properties instantiated in a region are there? (Ibid, p. 356) One simple and more ontologically safe answer to this question is that there are only a few possible distributions of 'necessary' and 'possible', over the non-sortalish properties instantiated in given regions. Or one might assert that only metaphysically possible combinations of modal properties are distributed in the given regions, are those things which belong to the kinds that we intuitively recognize.

[37] It is worth noting that Bennett herself does not believe in this view. She is more inclined to accept monism, but she thinks the pluralist has no better option.

Based on this simple account of the modal plenitude principle only the objects that we intuitively know that coincide in the region, r, exist. For example, only Lumpl and Goliath exist in the region which is filled by possible ways of distributing their modal properties instantiated in the region they both occupied. But there is no any metaphysically privileged criterion which shows that this favorite simple and parsimonious version of the principle holds. In addition, Bennett states that this parsimonious version does not properly explain the primitiveness of *de re* modal properties in the same way as its opposite version, i.e., the view that admits all consistent distributions of modal profiles are possible—and if n non-sortalish properties instantiated in a region, then there are around 2^n objects in that region— does. The reason is that if we accept the parsimonious version of the principle, questions like—why exactly are few modal profiles metaphysically instantiated? What does rule out the possibility of an otherwise statue-like object to be necessarily located in the region that Goliath exists? Many other similar questions remain unanswered, while the non-parsimonious version never confronts such questions since all of the consistent distributions are possible. So, this unparsimonious version is more appropriate than the parsimonious one (Ibid, p. 536).

Adopting the primitivism as a solution to a philosophical problem, in general, is not an easy job, it has a high cost and requires many theoretical attempts to justify this primitiveness; let alone the suggested form of primitivism is a bizarre view –which asserts that for any of the relevant differences we find between coincident objects there exist coincident objects differing in those ways. Thus, many worries appear which should be settled by the proponents of this view so that they can plausibly adopt modal plenitude primitivism. First of all, they need to explain away the main negative reaction that this view provokes. Secondly, they should explain that this proposed primitivism has a satisfactory explanatory role when it is integrated into our ideology. I

think that these conditions are not satisfied via the primitivism based on the modal plenitude principle.

According to Bennett, the most important reason that might provoke a negative reaction against this form of primitiveness ingrained in this assumption that taking modal profiles of objects as primitive is analogous to the claims that other types of properties, like categorical properties, are primitive as well. It seems the claim that, for example, it is primitive that Goliath is necessarily a statue is on a par with the claim that other categorical properties that Goliath has like being in the shape of a statue, being gray, having a certain weight, etc. all should be taken as primitive. Whereas Bennett puts emphasis on this issue that it is not at all clear that the claim that modal properties are primitive is on a par with the claim that those non-sortalish ones are primitive as well. Why? Because this fact that the modal properties of an object are primitive does not necessarily entail that the other non-sortalish or categorical properties of this very object should be taken as primitive. In other words, the proposition that it is primitive that *a is necessarily F* does not entail the claim that it is primitive that *a is F*. So, taking modal properties of an object as primitive is compatible with saying that its categorical properties are grounded in the microphysical structure of that object, for example, the claim that *Socrates is necessarily human*, is compatible with the fact that his humanity is explained in virtue of his genetic structure or other related biological facts. Bennett believes that this logical compatibility can alleviate the concern regarding the principle of modal plenitude (Ibid, pp. 353-354).

I do not think that the mentioned concern is completely eliminated just by this compatibility. The claim that it is primitive that *a is necessarily F* is logically consistent with this issue that a has Fness in virtue of something else, does not remove the concern that we have about the non-primitiveness of non-modal properties. The main question that raises this worry is

the following: how is it that *a is necessarily F* is primitive, while the fact regarding the proposition that *a is F* must be grounded in virtue of something else? It seems a bit odd to assert this issue just because of the logical consistency that holds between these two modal and categorical states of affairs. I think the mentioned concern remains till someone finds a plausible substantial connection to show why the modal state of affairs must be taken as primitive, while the same state of affairs without modal restrictions can be explained in other primitive facts. An explanation is needed to bridge this gap. *a is F* in itself can be explained in terms of something else, while its modal forms, i.e., *a is necessarily F* or *a is possibly F* can be taken as primitive. There must be a plausible explanation to slow down the negative reaction in this primitivism. Showing logical consistency is the necessary condition, not the sufficient one. Thus, the defenders of the modal plenitude primitivism are expected to say something more about this concern.

They might say that we cannot embrace a primitivism about the categorical properties of objects as there is no reason to do so, because other explanations of why objects have the non-modal properties they possess are in fact available, and so we do not need to embrace the corresponding primitivism about them and can instead adopt a more parsimonious stance about the distribution of non-modal properties in a given region of spacetime. As a similar explanation is not (readily) available in the modal case, modal plenitude principle is welcome. But in order to justify this claim, the other possibilities for explaining modal properties should be ruled out to strengthen modal plenitude principle.

Another issue that provokes worries about modal plenitude primitivism is that the principle makes our ontology neither qualitatively nor quantitatively parsimonious. As it was discussed, based on the more appropriate version of this principle, pluralists, who adopt this

principle, do not just assert that only two coincident material objects like Lumpl and Goliath occupied in the same region; rather, they are committed to the existence of a huge number of peculiar entities coincident with Lumpl and Goliath which share the same non-sortalish properties with them, and differ in terms of modal profiles. The plenitude principle easily multiplies the numbers of material objects without providing any adequate explanatory role for this issue.

Since we have to accept the huge numbers of instantiated modal profiles as primitive, the principle violates the condition of being qualitatively parsimonious. Besides, due to the fact that consequently we are committed to the existence of a large number of material objects co-located in the same spatiotemporal region, the basic requirement of quantitative parsimony is not satisfied. Adopting the principle which violates both known versions of ontological simplicity without providing enough explanatory roles for it, and compelling reasons that this principle is vastly applicable in various philosophical disciplines, has a prohibitive cost, that metaphysicians are not eager to pay easily. I mean that it is not a tenable view to hold this principle and pay this considerable cost just to be able to deal with the grounding problem. There must be some more general benefits strengthening the plausibility of adopting such a bizarre and unparsimonious view about modality and objects. It seems that the power of this modal principle is just applicable to explain some sortalish properties of coincident objects, and nothing else. Whereas if the proponents of this view want to defend this counterintuitive view, they are expected to intensify the power of it as a general theory about modality which has some advantages compared to the rival theories. Furthermore, they should extend the applications of this principle to other philosophical problems and put forward some solutions for them based on this theory so that they can enrich the explanatory power of this principle.

Comparing this view with another bizarre theory of modality is helpful. Modal realism forces its proponents to assert the existence of extremely weird entities, but Lewis claims this theory can non-circularly reduce modal notions into categorical ones. In additions, it can be applied to put forward a plausible solution to some puzzles in a few other philosophical discussions about counterfactuals, causation, propositions, properties and supervenience, etc.; but it seems that the modal plenitude principle is proposed just to deal with the puzzle of coincident objects. Pluralists who are eager to defend this form of primitivism suggested by Bennett, should bear the burden of the proof and provide more applications regarding this principle so that they can mitigate these worries about this bizarre primitivism.

In addition to the aforementioned concerns that make this form of primitivism unappealing for pluralism, the main problem which poses a serious barrier for this account is that some sortalish properties, which are not supposed to be primitive, remained ungrounded. According to modal plenitude principle, only the modal parts of sortalish properties are taken as primitive and the rest of them grounded in these brute modal profiles. This primitivism only takes the modal profiles of coincident objects as primitive, while the sortalish properties are not all modal. If the modal plenitude principle is a successful primitivist solution to the grounding problem, any of the relevant differences we find between coincident objects must be grounded upon the instantiated modal profiles in the region occupied by the non-sortalish properties of Lumpl or Goliath. As noted in the first chapter, there are different non-modal properties between coincident objects, they belong to different kinds or sorts (sortal properties), or they differ in terms of evaluative or aesthetic properties and so on and so forth. The defenders of modal plentitude primitivism should plausibly find a way so that they can reduce or ground the non-modal sortalish differences in terms of modal differences between coincident objects. This issue

is not the main worry as long as they can plausibly find a way for these reductions or explanations. But the serious problem is that there are some sortalish properties that cannot easily be reduced or explained by modal properties. Coincident objects are distinct with respect to their essences; Goliath as a distinct object has essential characteristics which Lumpl does not have. Considering the compelling arguments developed by Kit Fine (1994a) about the inadequacy of understanding essence in terms of necessity (modal notions), pluralists cannot easily claim that essential properties that exist among coincident objects are reducible to (or explainable in terms of) some instantiated *de re* modal properties. It is *de re* necessary of any entity that, if it exists, then 2 + 2 = 4; but this is not part of any material entity's essence, or it is *de re* necessary of Socrates that he belongs to singleton Socrates if both Socrates and his singleton exist, but it is no part of the essence of Socrates to belong to the singleton (Fine, 1994a, pp. 4-5). Kit Fine's position about the relation between essence and modality is defensible among the metaphysicians believing in essentialism, and rejecting this theory just to save the modal plenitude primitivism considerably makes this principle unattractive. Adopting Fine's theory renders some non-primitive sortalish properties ungrounded. Thus, even though a pluralist can pay the theoretical cost of this bizarre principle so that she could deal with the puzzle of coincident objects, she comes across the mentioned thorny dilemma about the deferent essential properties among coincident objects.[38] Considering the mentioned worries and problems and the peculiarity of modal plenitude principle, Bennett's form of primitivism is not a satisfactory position for pluralists and does not settle the grounding problem.

[38] To avoid this problem, the proponents of modal plenitude primitivism might appeal to the modal account of essence. I think this strategy makes the modal plenitude primitivism more unappealing as it would be only available to those who believe in modal account of essence. Following Kit Fine, I do believe that there are compelling intuitive reasons to hold the distinction between a mere necessary property and an essential one; even though they want to rebut the intuitive distinction between necessity and essence, they are expected to independently argue to rebut Fine's account of essentialism. It does look like an ad-hoc response that just in order to avoid the mentioned problem we should welcome modal account of essence.

3.3.2. Sortal Primitivism

Considering the distinction between modal and sortal differences among coincident objects, pluralists might hold that the more controversial case of the two is the modal one. Here, the suggestion could be that we can take sortal properties as primitive, and ground the modal and other sortalish profiles upon them. The general strategy is to explain the modal differences between coincident objects by referencing the sortal differences between them. Pluralists, for instance, can appeal to the kinds that Lumpl and Goliath belong to – i.e., the statue and the lump of clay –to explain in virtue of what the former is capable of being squashed into a ball and the latter is not. In this part, I will briefly review this form of primitivism, and indicate serious problems which prevent pluralists to embrace this primitivism as a reply to the grounding problem.

Sortal primitivism states that we can take the sortal properties distinguishing coincident objects as primitive, and ground the rest of sortalish properties, namely modal properties, on the primitive sortal ones. Lumpl and Goliath belong to different kinds, Lumpl is a lump of clay, Goliath is a statue. According to sortal primitivism, all *de re* modal properties of Lumpl like the possibility of being squashed into a ball is explained in virtue of being a lump of clay; belonging to this kind allows Lumpl to be squashed into a ball without losing its connection to the kind of lump of clay. In the same vein, the fact that Goliath does not have this kind of possibility is explained in virtue of being a statue. The fact that Goliath cannot be squashed into a ball is derived from this fact that being a statue prevents having this *de re* modal properties or any other modal properties that it has. If we squash Goliath into a ball, it does not belong to the kind is called being statue anymore.

I do not go through the details of this form of primitivism and various versions of it; instead, I raise some difficulties that the proponents of this view all come across when they want to ground modal and other properties of coincident objects on their different sortal profiles. They might say Goliath is not capable of being squashed in virtue of being a statue, and not a lump of clay; Lumpl is capable of being squashed in virtue of being a lump of clay, and not a statue. Thus, these sortal differences between Lumpl and Goliath are supposed to explain a wide variety of modal and other differences between them.

This reply is not satisfactory because the relation between sortalish properties and modal properties are less clear. The defenders of this view claim that the *de re* modal properties of Goliath, for example, are derived from the fact that Goliath is a statue. But I do not think that this simple reply would be satisfactory, as this response pushes the problem one step back. We can ask this question that why being a statue gives some special *de re* modal properties to Goliath. Modal properties of the kind which Goliath belongs to cannot be taken as primitive; they cry out for an explanation, and this explanation is as difficult as the explanation of Goliath's modal properties. Sortal primitivism tries to explain modal properties of coincident objects based on the sorts of kinds the objects belong to, while the fact those sorts or kinds have the mentioned modal properties still need an explanation. This issue does not refute sortal primitivism; however, it is a serious worry about this strategy.

Even though we can show that the sortal properties do not contain any modal features, and accept this kind of primitivism, there are some serious problems that make this strategy unattractive for pluralists. The fact that Goliath does not have the possibility of being squashed is explained in terms of the fact that Goliath is a statue, this explanation is not complete. We can find counterexamples which show that some particular statues might have some *de re* modal

properties that Goliath cannot have. It is easy to imagine an object in the form of a statue constituted from some kinds of elastic and flexible materials which remain the shape of the statue or restore it when the object is squashed into a ball. This counterexample shows that the possibility of not being squashed into a ball for Goliath cannot easily be derived from the fact that it is a statue as it is possible to have a statue which can be squashed.

Furthermore, there are counterexamples showing coincident objects that belong to the same sort but have different modal and other properties. There may be modal differences between coincident objects that do not turn upon a difference in their sort. Fine (2000) mentions some of these counterexamples; he shows that two letters could coincide in the world, even though they can have different modal properties.

"Fluent wishes to write a letter to his elder daughter, who only understands Prittle, and a letter to his younger daughter, who only understands Prattle. The peculiarities of Prittle and Prattle are such that the same inscriptions will often serve to convey different contents in the two languages and, being adept at exploiting these peculiarities, Fluent is able to write the letter to his elder daughter in Prittle while simultaneously writing the letter to his younger daughter in Prattle. The first letter (under a rough translation from Prittle) begins as follows:

I write this letter, dear first-born, in order to demonstrate my skill at parallel penmanship? for as I write this letter to you in Prittle, I am simultaneously writing a letter to your sister in Prattle ...,

and the second letter begins in a similar vein, though is much more florid in its style and extravagant in its claims. It seems, for much the same reasons as before, that the two letters are distinct. Indeed, the letters are in different languages and the elder daughter might even accuse the younger daughter of reading her letter if she used a dictionary from Prittle to Prattle to decipher its content. Given the distinctness of the letters, we might then argue for their necessary coincidence as follows. Suppose that one of the letters exists in some possible world. Then Fluent must have written it at some given time. But it is hard to see how in writing the one letter, he could fail to write the other, especially given that the point in writing the letters was to demonstrate his skill at simultaneously writing in Prittle and Prattle. Thus the other letter must also exist. But the two letters presumably then came into existence at the same time (viz. when they were written) and, moreover, we may suppose that the nature of Prittle and Prattle is such that any damage to the paper or writing that destroys the one letter will destroy the other. Thus the letters will also cease to exist at the same time. Finally, the location of the two letters will be the same whenever they exist, since they are written on the very same paper and with the very same ink." (Fine, 2000, pp. 359-360)

This interesting example is very similar to the case of Lumpl and Goliath despite this fact the here we do not have sortal differences. Two letters, as coincident objects, belong to the same sort or kind, but they are distinct due to some actual and modal differences between them. To see the modal difference, consider this fact that the letter is written for Fluent's elder daughter has this possibility of making her excited, while the other one does not have this possibility etc.

These types of examples revealing the possibility of coincident entities that belong to the same sort pose a serious challenge for sortal primitivism. Even though we can find a version of sortal primitivism that can properly accommodate the sortalish properties of coincident objects based on sortal ones, this issue still remains problematic as sortal primitivism, *ipso facto*, cannot ground the modal and non-modal properties that coincident objects belonging to the same sort have. These types of counterexamples, which can be found in every particular case, pose a real difficulty for sortal primitivism to be regarded as a plausible and compelling form of primitivist response to the puzzle of coincident objects.

3.3.3. Identity-Based Primitivism

We have seen that both sortal primitivism and modal plenitude principle are not satisfactory and adequate primitivist strategies for pluralists. If neither sortal nor modal properties between coincident objects cannot plausibly be taken as primitive, pluralists are expected to find a different way to explain coincident objects' modal and sortal features. Considering the problems that these two proposed forms of primitivism have, Louis deRosset (2012) puts forward a third primitivist strategy which is purported to explain the differences between coincident entities with respect to their identity properties. The question, then, is in virtue of what is Goliath a statue, or Lumpl a lump of clay? deRosset holds that the plausible explanation should involve certain circumstances under which Goliath was brought into

existence, and in which it exists over the course of its career. So pluralists need to consider in virtue of what circumstances Goliath is a statue. These circumstances may include the arrangement of the matter that makes up Goliath, the manner in which it was created, the intentions with which it was made, and many other such considerations. Let's call these circumstances C. deRosset asserts that C cannot be the whole explanation of Goliath's statuehood since Lumpl – which is not a statue – was created and exists in all the same circumstances. However, he holds that if we add the apparent differences between Lumpl and Goliath with respect to their identity properties to the story, we can find the satisfactory explanation. It is plausible for the pluralist to suggest that Goliath is a statue –rather than a lump of clay – in virtue of its identity properties, or Lumpl is a lump of clay–rather than a statue– in virtue of its identity properties. Or the fact that Lumpl–not Goliath–has a *de re* modal profile which allows it to be squashed into a ball is explainable in terms of Lumpl's identity properties; likewise, all the particular *de re* modal properties of Goliath are grounded in virtue of Goliath's identity properties (deRosset, 2012, pp. 183-184). By appealing to C, we can explain why Goliath is either a statue or a lump of clay rather than a window. Appealing to C, however, would not explain why Goliath is a statue since the same explanation would also apply to Lumpl. What is supposed to explain why Goliath has different modal and sortal sortalish properties, according to deRosset, is its identity properties. As stated in this view, part of what makes Goliath a statue is the arrangement of its parts; but another part of what makes Goliath a statue is its being the individual that it is. The same can be said for Lumpl. Ultimately, according to this view, both the sortal and modal differences between Lumpl and Goliath are grounded the apparent differences which obtain between Lumpl and Goliath with respect to their identity properties and C (Ibid, p. 185).

Furthermore, deRosset (2012) argues that this explanation cannot go further, and monists are not legitimate to request any further explanation for why there are differences in identity features between Lumpl and Goliath. Further explanation means someone claims that Lumpl and Goliath's disparate modal, sortal, and identity properties must be explained in virtue of something else. deRosset argues that this explanatory demand is illegitimate. Monists, who demand for a further explanation about Lumpl and Goliath's different identity properties, mean that the modal, sortal and identity differences between Lumpl and Goliath must be explained in virtue more fundamental notions. deRosset holds this demand can be interpreted in two different ways depending on what 'further explanation in other terms' means. "On the one hand, explaining Goliath's identity properties in "other terms" might require explaining them in purely qualitative terms. Alternatively, we might more liberally allow an explanation of Goliath and Lumpl's disparate identity properties in terms of the identity properties of other things, like the identity properties of quarks and leptons or spacetime regions."(Ibid, p 185)

The first interpretation means the identity properties of Lumpl and Goliath can be explained in terms of merely qualitative properties, while such a demand is not legitimate not only for pluralists but also for monists. The identity facts of a thing cannot be explained in terms of the more fundamental qualitative properties of that thing or its spatiotemporal relations to other things. The reason is simple and straightforward; the identity property of a thing uniquely belongs to the very same thing, while it is plausible to think that distinct things or objects have the same qualitative properties. Thus the demand for a further explanation of identity properties based on more fundamental qualitative properties is not legitimate.

The second meaning is not restricted to qualitative properties and allows the explanation of Lumpl and Goliath's different modal, sortal and identity profiles in more fundamental

properties either qualitative or non-qualitative. It seems that based on this demand of explanation, we can appeal to facts about the identities of more fundamental microphysical parts like the identity properties of quarks and leptons that Lumpl and Goliath share, for instance, the particular location in space and time that they occupy. deRosset holds that pluralists can rule out the legitimacy of the second interpretation by claiming that adding the identity facts to microphysical constitutional parts of an object like spacetime region, quarks, lepton, etc. is not sufficient for explanation of the identity properties of the thing constituted by those microphysical parts. A defender of identity-based primitivism can appeal to, for instance, extreme haecceitism, according to which there are no qualitative modal sufficient conditions for being an individual. Something, according to extreme haecceitism, could have had exactly Goliath's qualitative properties (e.g., been brought into the existence from the same sculpture, been made of the same quarks and leptons as Goliath is) and yet have been distinct from Goliath. This reply would work here; however, it is not interesting to welcome the extreme haecceitism just to dismiss the problem. Instead, deRosset suggests that to deal with this issue, we can make a challenge for people who believe that the identity properties of Lumpl and Goliath should be explained based on more fundamental identity or non-qualitative properties. We "can simply insist that, if it is legitimate to take some identity facts as basic, then there is no reason not to take the identity facts she claims for Goliath and Lumpl as basic. What's good enough for quarks and leptons is good enough for statues and lumps." (Ibid, p. 187) deRosset makes a challenge for monists who think the identity properties should be more fundamental. These people are supposed to explain why we should take identity facts regarding microphysical parts or spacetime regions as primitive. As long as there is no any justifiable reason for this preference,

we can keep the idea that identity properties of coincident objects like Lumpl and Goliath are primitive, and do not require further explanations.

I agree with deRosset that monists cannot legitimately ask for further explanation, but I do not think that deRosset can easily find a way of solving the grounding problem by appealing to apparent differences between Lump and Goliath with respect to their identity properties. As I explain, there are serious problems that make the current identity-based primitivism inapplicable as a persuasive response to the grounding problem. I do not argue that this theory is wrong because it takes the identity differences between coincident entities as primitive to settle the grounding problem; rather I think that there is a huge gap in this theory which must be bridged by its defenders so that they can deal with the puzzle of coincident objects.

Based on the identity-based primitivism proposed by deRosset, the identity properties of coincident objects like Goliath and Lumpl are taken as primitive, and the sortalish properties that each of these objects has are explained in virtue of the identity properties and all the circumstances, C, which brought the objects into the existence. As mentioned above, Lumpl and Goliath share the same C. Based on C, we can explain the common properties that both Lumpl and Goliath share and make them distinct objects from other entities like windows, tigers, and so on and so forth, and what is expected to be the base of the differences between Lumpl and Goliath is their different identity properties. So, it is plausible to say that the sortalish properties, including sortal and modal features that make Lumpl distinct from Goliath, are grounded in Lumpl's primitive identity properties (the same can be said about Goliath). Modal and sortal properties of coincident entities are all qualitative properties;[39] in contrast, identity properties of

[39] A property is purely qualitative – a suchness – if and only if it could be expressed, in a language sufficiently rich, without the aid of such referential devices as proper names, proper adjectives and verbs (such as 'Leibnizian' and

objects are non-qualitative properties. Non-qualitative identity properties are the properties of being numerically identical to a thing. For example, only Goliath can instantiate the property of being numerically identical to Goliath at every time and in every world in which Goliath exists.

The worry that does arise about the identity-based primitivism is this: how are Lumpl's specific qualitative properties like *being a statue* or *being able to be squashed into a ball*, to be derived from non-qualitative properties like *being Lumpl* given this plausible idea that qualitative properties are explainable only in terms of other qualitative properties. deRosset himself addresses this objection in his paper and tries to alleviate the worry by finding a counterexample which shows that qualitative properties are related to the non-qualitative ones. Consider the pair set of {Socrates, Plato} which has its unique non-qualitative identity property. The pair set also has the qualitative property of having exactly two members. deRosset holds that it is plausible to think that the pair set has the mentioned qualitative property in virtue of having exactly Socrates and Plato as members. Thus, we have an example which shows that a qualitative property of a thing is explained in virtue of its non-qualitative features. deRosset claims, without further elucidation, that explaining Goliath's sortal and modal properties based on its identity properties might provide similar another counterexample for grounding qualitative properties on no-qualitative ones (deRosset, 2011, p. 189).

I do not think that such counterexamples easily dismiss the worry. It is not clear that the mentioned qualitative property for the set is exactly explained in terms of the identity of Socrates and Plato as members. I am doubtful that the property of having exactly two numbers is a qualitative property which is genuinely explained by the identity properties of Socrates and Plato

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'pegasizes'), indexical expressions, and referential uses of definite descriptions. All the properties that are, in certain senses, general (capable of being possessed by different individuals) and nonrelational are qualitative (suchnesses) (Adams, 1979, p. 7).

as the members of the set. Rather, it seems like a trivial truth about the set or conceptual conclusion that we can say about the set whenever we see two objects as its members, the case is totally different from the case of coincident objects. What we need to settle the worry is an explanatory mechanism to show us how qualitative properties are derived from the identity properties. This vague example surely does not pave the way for this role. The set has two objects as members; any other pair of objects could explain the mentioned qualitative property. It seems that the mentioned qualitative property of the pair of a set is explained in terms of other more general qualitative properties that the set is a pair set; even we do not recognize the nature of the members of the set, this qualitative property is explainable.

Even though we accept that some qualitative properties can depend on non-qualitative ones, defenders of identity-based primitivism are expected to show us the mechanism of this dependency. We cannot easily conclude based on just identity properties of Lumpl, that Lumpl has the so and so modal and sortal properties. Even though the mentioned example about the set truly shows that there are cases of explaining some qualitative properties in terms of non-qualitative ones, we cannot apply it to the case of coincident objects without indicating the mechanism of this dependence and explanation.

This issue leads us to a more serious and general concern regarding the strategy put forward by deRosset. If we take the identity properties of both Lumpl and Goliath as primitive, and suppose that it is possible and plausible that qualitative properties can be grounded in non-qualitative ones, the grounding problem still remains as we can still ask this significant and crucial question how Goliath's modal profiles are derived from its identity properties. Goliath is not capable of being squashed into a ball. An explanation is needed, according to the grounding problem, to show how such modal properties are grounded in Goliath's identity; it cannot be said

that this feature is part of Goliath's identity because, given the argument presented above, we are not eager to accept modal profiles as primitive. Or it cannot be said that being a statue is ingrained in the identity property of being Goliath because this claim makes some of the sortal properties primitive and creates circularity in explaining the sortalish properties in terms of identity properties. A detailed mechanism is needed to show how exactly the sortalish properties of coincident entities are derived from their identity properties. The grounding problem is raised due to the lack of such a mechanism, and until we cannot show how exactly the sortalish properties of coincident objects are related to some other properties, the problem remains.

In conclusion, taking identity properties as primitive does not settle the principal concern of the grounding problem unless it can be shown how modal profiles are derived from identity properties. With the absence of such an explanation, identity-based primitivism does not provide a reliable solution to the grounding problem.

3.4. Conclusion

Some pluralists have suggested that the grounding problem can be settled by appealing to some versions of the supervenience relations which are compatible with the occurrence of coincident objects. They believe that the sortalish differences between coincident objects supervene on the non-sortalish ones. But, the supervenience-based strategies fail to correctly solve the grounding problems. As has been seen, the grounding problem is explanatory, while the supervenience relations do not have enough explanatory power to show why coincident objects sortalishly differ despite the fact that they both share the same non-sortalish properties. Thus, the supervenience relations cannot help pluralists to deal with the grounding problem.

The failure of supervenience-based solutions rules out the possibility of explaining sortalish differences between coincident objects in terms of their common non-sortalish

properties. Thus, it seems that if pluralists want to deal with the grounding problem, they should appeal to a kind of primitivist solution. In this chapter, three versions of primitivist solutions were examined: modal plenitude, sortal, and identity-based primitivism have been discussed. I argue that none of them can be regarded as a plausible version of primitivism which can adequately address the puzzle of coincident objects. In the next chapter, I will explore the other considerable primitivist approaches, and try to show how pluralists should deal with the grounding problem.

Chapter 4: How to Deal with the Grounding Problem

4.1. Introduction

The lesson we have learnt from the previous chapter is that physical properties which coincident objects share cannot ground the sortalish differences between them. Moreover, the strategies which propose either modal, sortal, or identity differences between coincident objects must be taken as brute facts so that we can ground the rest of sortalish differences on them, come across serious problems which make them philosophically unattractive. Indeed, it is true that the grounding problem cannot rule out pluralism as a plausible position regarding the occurrence of coincident objects; nonetheless, I believe that there are good intuitive reasons to think that sortalish differences (or at least the most salient ones, namely sortal and modal differences) between coincident objects require an explanation and should not be taken as primitive.

In order to deal with the puzzle of coincident objects and ground the sortalish differences between them, first, we need to clarify what an object is. This sort of clarification paves the way to understand why especial modal and sortal properties belong to an object. Thus, instead of asking why there are sortalish differences between coincident objects, we should first address this question that why an object has modal or sortal profiles that it does. If we can explain, for example, why Goliath has special sortal and modal properties that it does, then we will be able to adequately explain why it differs from Lumpl in terms of the mentioned sortalish properties.

To properly address the grounding problem, first, we need to know which kinds of explanation might be useful in such cases. The differences between coincident objects, like Lumpl and Goliath, derive from the different modal or sortal profiles that the objects possess. In order to explain an object's features, we need to distinguish between two explanatory questions: how and what the object is. The former question invokes the accidental properties of the object,

and how the object happens to be, whereas the latter deals with the object's essential features, and what it is by its very nature. Thus, the kind of explanation needed for the grounding problem is about what these objects are, and what essential features they have (Fine, 2008, p. 107). Therefore, we should start from questions regarding the nature of a composite object or *what an object is* which invoke the essential characteristics of the object. Since the accidental properties are not related to the nature of the objects, they are irrelevant to the problem in question. Thus, what we need is an explanation of what a composite object fundamentally is, and why it has the intrinsic features that it does have. It is the general strategy that pluralists can follow so that they can deal with the puzzle of coincident objects. In this chapter, I will examine the solutions approaching the grounding problem with the preceding strategy in hand.

Based on the aforementioned consideration, some hylomorphic solutions have been put forward to settle the grounding problem. These solutions completely depend on the ontological assumption that material objects are not entirely physical entities. Hylomorphism is an Aristotelian doctrine which states that ordinary material objects are composites of form and matter. Hylomorphic solutions, roughly speaking, propose to solve the grounding problem with the claim that objects are compounds of form and matter, and while coincident objects have the same matter, they differ formally. Based on how the relation between forms and objects is explained, the proponents of these solutions believe that a hylomorphic response to the grounding problem can be given. Despite the technical differences between various pluralist versions of hylomorphism, all of them follow the same strategy with respect to the grounding problem that the sortalish properties between coincident objects can be grounded in the non-material (formal) components which make the objects distinct.

In this chapter, I will examine one of the contemporary versions of hylomorphism and the solution to the grounding problem which is formulated based on this view. Alan Sidelle (2014) poses a genuine dilemma concerning all the hylomorphic solutions to the grounding problem. Illustrating Sidelle's dilemma, and explaining the barriers that the hylomorphic solutions face to give a distinctive solution to the grounding problem, I conclude that the grounding problem is not simply settled just by appealing to formal components distinguishing coincident objects. Albeit, I believe this issue is not a serious barrier for the hylomorphists believing in coincident objects as I argue that the grounding problem is not powerful enough to settle the dispute between monism and any version of pluralism.

In the second half of this chapter, I put forward an account of primitivism based on Aristotelian notions of essence which I call 'essential primitivism'. According to this view which is rooted in Aristotelian non-modal conception of essence inspired by Kit Fine (1994a), the essential characteristics of coincident objects are taken as primitive and the rest of sortalish differences between them namely modal and sortal ones are coherently grounded upon the primitive essential properties that each object has. Finally, I compare my favorite essential primitivism to its rival primitivist strategies discussed in the third chapter and argue why the essential primitivism is preferable.

4.2. Hylomorphism and the grounding problem

Proponents of hylomorphic solutions[40] believe that the puzzle of coincident objects can be settled by appealing to the hylomorphic theories of concrete material objects which treat these entities as matter/form compositions. In the previous chapter, I discussed the idea that the sortalish differences between coincident objects cannot be grounded in the physical properties

[40] See: Fine (2008) and Koslicki (2008)

that they both share. Coincident objects, like Lumpl and Goliath, are both constituted by the same material components (the same clay); hence, if there is a difference between them, it might arise from how they are respectively constituted of the clay composing both objects. It might be said that Goliath is composed of the clay in one way and Lumpl, given that it is distinct from Goliath, is composed of the clay in some other way; and sortalish differences follow from how each object is composed of the clay. These compositional differences are purported to be the base of an explanation of how the sortalish differences arise in hylomorphic approaches to the grounding problem. In this analysis of objects based on the hylomorphic dichotomy, Goliath and Lumpl are compositionally different objects, so the sortalish differences between them must follow from their formal differences making them two distinct objects.

There are various versions of hylomorphism in the literature, and based on how the form-matter compound is understood, different solutions can be put forward to the grounding problems in defense of pluralism. As all of these solutions follow the similar strategy, in the next section, I will explain one of the contemporary accounts of hylomorphism proposed by Kathrin Koslicki (2008), and illustrate how a solution to the grounding problem can be formulated based on this hylomorphic theory.[41]

4.2.1. Koslicki's hylomorphic account of objects

Kathrin Koslicki (2008) provides an interesting Neo-Aristotelian hylomorphic theory of ordinary material objects supporting our ordinary and scientific intuitions about them. Objects, in this theory, are treated as structured wholes that exist only if their parts are adequately unified and exhibit the right kind of structure or form. The most significant part of this theory, which is central to the discussion in question, is that material objects consist of formal parts in addition to

[41] For instance, see: Kit Fine (2008) for another hylomorphic solution to the grounding problem.

their ordinary material parts. Metaphorically speaking, these formal parts, according to Koslicki, seem like a recipe that determines "a range of selection requirements which must be satisfied by an object's material components." (Koslicki, 2008, p. 197) These requirements might encompass the spatiotemporal proximity and the manner of arrangement of the object's material components.

The formal parts of objects determine when we have a genuine and proper composition because, in this theory, what it means to be an object is that the material parts of the object satisfy the criteria which are posed by the recipe of the given object. This recipe is a set of criteria specifying when a bunch of material parts composes an object of a certain kind, for instance, the arrangement of material parts based on a given recipe is decisive for an object to belong to a particular kind. The notion of a recipe includes some constraints associated with the kind that an object belongs to; (i)the constraints concerning the types of material components of the object, (ii) constraints about the arrangement or configuration of the material components composing the object, (iii) constraints regarding the number of material components of which a given whole must be composed.

Any genuine kind of object, in Koslicki's view, has a set of formal components, which play the role of the recipe according to which the material components compose a whole of that particular kind. One of the most crucial elements of Koslicki's theory is the Neo-Aristotelian thesis which holds that "the material and formal components of a mereologically complex object are proper parts of the whole they compose." (Ibid, p. 181) According to this thesis, the formal parts of an object, besides the material parts, are literally constitutive parts of it as a whole or composition. This Neo-Aristotelian thesis keeps the normal intuition that we have about an

object and rules out this idea that gerrymandered fusions such as the trout-turkey can make a compositional object as there are no recipes for such objects.

Koslicki's theory can be briefly described by the following principles and definitions which are the main elements of her view: the principle of restricted composition, Neo-Aristotelian thesis, composition as non-identity, and the unified nature of wholes.

The principle of restricted composition: Koslicki's theory requires a realist ontological commitment about kinds which govern the restricted compositions. According to this requirement, a set of objects composes a further object of a particular kind just in case the original set of objects satisfies the formal constraints associated with that kind (Ibid, p. 173).[42] Any genuine natural kind imposes formal constraints for its composite objects. When material parts are arranged based on the recipe which relates material components to each other in such a manner which satisfies the conditions for composing an object of a particular kind, composition takes place. Composite objects are fixed and determined by kinds which objects belong to (Ibid, p. 170). Koslicki articulates that mereology does not address this question that what exists, rather it must be in accordance with our scientifically informed common-sense ontology which has been independently adopted.

Noe-Aristotelian Thesis: As mentioned above, Koslicki develops a new version of Aristotelian hylomorphism which claims that ordinary material objects are composed of both formal and material components. In this account, an object is understood as a structured whole that exemplifies a principle of unity. The existence of whole does not just depend on the existence of the parts, rather parts must be related in the right way so that whole can exist. The

[42] To know more about Koslicki's view about kinds, see: (Koslicki, 2008, Chapter 8)

parts must be arranged based on certain structure (formal part), and this structure is literally a part of the whole or composition. Thus, form and matter are both literally proper components of an object. In order to establish this view, Koslicki appeals to the weak supplementation principle (a principle she takes to be constitutive of the notion of parthood) holding that "an object that has a proper part must have at least another proper part disjoint from the first." (Ibid, p. 168) In other words, if x is a proper part of y then there exists a z that is a part of y and that is disjoint from x. Based on the Neo-Aristotelian thesis, Koslicki's theory allows the occurrence of coincident objects which share all the same material parts and differ only in formal aspects, and are consequently distinct. In the next section of this chapter, I will go back to the detailed discussion of coincident objects based on Koslicki's theory.

Composition as non-identity: In Koslicki's theory, the relation between parts and the whole is not identity. Composition (whole) is not identical to its parts. In her words, composition is not ontologically innocent, rather it is ontologically loaded. Wholes are not numerically identical to their parts, instead by composition a new object is added to our ontology (Ibid, p.192).

The unified nature of wholes: This aspect of Koslicki's view, which is adopted from ancient structured mereological views,[43] holds that composite objects are united despite the fact they are composed of many parts. Their parts are many but they are one. Koslicki argues that their unity follows from the fact that they are specimens of a kind (Ibid, pp. 196-197).

4.2.2. Koslicki's account of objects and the grounding problem

Koslicki's theory of material composite objects and the emphasis on the role of Neo-Aristotelian thesis in her account provides a mereological solution to the puzzle of coincident

[43] See: Koslicki (2008, chapter 4)

objects. Considering the dichotomous nature of composite objects and the formal differences between an object as a whole and its material parts, which are the main elements of her account, the sortalish differences between coincident objects, in general, are expected to be grounded in the formal components which make the whole distinct from its material parts. Suppose our repeated example of coincident objects Goliath, the statue, and the Lumpl, the lump of clay of which the statue is composed of. According to Koslicki's hylomorphic theory, we can argue for the distinctness of these two objects as follows:

The clay is the material component of Goliath.

Lumpl and Goliath share the same material parts (i.e., the lump of clay).

Lumpl is a proper part of the statue.

(If x is a proper part of y, then there must be another thing z such that z is a proper part of y, yet is disjoint (i.e., shares no proper part) from x; (the weak supplementation principle.)

Thus, there is formal (non-material) part of Goliath which disjoints it from Lumpl.

According to this view, the sortalish differences between the statue, Goliath, and its material parts, Lumpl, are potentially grounded in the fact that Goliath has additional formal components which are not shared by Lumpl, and these formal parts "act as a sort of recipe in specifying the range and configuration of material components eligible to compose a whole of this kind."(Ibid, p. 182)

Based on all the mentioned crucial aspects of Koslicki's account, especially Neo-Aristotelian thesis and the uniqueness of composition, the formal parts of Goliath, e.g., determine to which kind it belongs to. In addition, these formal components specify the manner of

arrangements of shaping the statue, and what is required to bring it into existence. The material components come to bear an array of functional properties which did not exhibit them before being arranged into the shape of the statue, and new types of persistence conditions and modal features are attributed to the statue that cannot be attributed to the material components due to its formal restrictions. The modal features of the statue cannot be dictated by its material components since these are shared between the statue and Lumpl. If material components dictated modal features of Goliath, Lumpl would have the same modal features because they share the same material components.

To put forward a hylomorphic solution to the grounding problem, this theory is expected to explain that how the presence of formal components within a mereologically complex object contributes to explaining its modal properties making it different from the object sharing the same material parts with it. In this account, if an object is composed of material and formal components as a whole of a particular kind, the presence of formal components within an object imposes two sorts of constraints governing the material components of an object. Koslicki believes that the way that forms contribute in accounting for the modal profile of an object (as a hylomorphic compound) must originate from these two sources: "(i) constraints concerning the *types* of constituents of which a compound consists; and (ii) constraints concerning the topological or geometrical *configuration* or *arrangement* that is exhibited by these constituents." [Original Italics](Ibid, p. 255)

These restrictions articulate that the unique modal profiles of an object, as a mereological complex whole, are ingrained in its formal components as opposed to its material parts. Indeed, this fact paves the way for explaining how the modal features of coincident objects are different despite the fact they share the same material parts.

In the same vein, sortal differences between coincident objects follow from this fact that they belong to different kinds. As was mentioned in the previous section, the restricted composition principle determines that a set of objects composes a further object of a particular kind just in case the original set of objects satisfies the formal constraints associated with that kind. Each object belongs to its related kind owing to its formal components.

As we have seen, the hylomorphic solution to the grounding problems is centered on the Aristotelian assumption that coincident objects, despite sharing the same material components, are formally distinct; hence their distinct forms are expected to play the central role in grounding the sortalish differences between coincident objects. Thus, if a solution to the grounding problem wants to be distinctively hylomorphic, it is expected to highlight the role of the forms in the solution in a way which is not available to other pluralists who do not believe in hylomorphism. In the next section, it will be discussed that there is a formidable obstacle to providing a distinctively hylomorphic solution to the grounding problem.

4.2.3. Sidelle's objection to hylomorphic responses to the grounding problem

As mentioned above, hylomorphic strategies state that the puzzle of coincident objects can be solved by appealing to the dichotomous nature of ordinary material objects which are compounds of form and matter. While coincident objects share their matter, they differ in their forms. Thus, the sortalish differences between them are grounded in these formal distinctions. Hylomorphic approaches to the grounding problem, in general, have been seriously challenged by Alan Sidelle (2014) posing a genuine dilemma which shows that hylomorphists should either accept that this approach (regardless of what version of hylomorphism is accepted) does not solve the grounding problem, or admit that the solution is not proprietary to hylomorphism, and hence can be developed by non-hylomorphic approaches to this puzzle as well. Therefore,

according to Sidelle, hylomorphic approaches fail to deal with the puzzle of coincident objects with a distinctive solution.

The first horn of this dilemma illustrates that based on certain conceptions of form, hylomorphism does not really propose a solution to the puzzle of coincident objects. Considering this question of what it is for an object to have a form, Sidelle holds that if we simply assume forms as a shape or the geometrical mode of arrangement of constituent material parts, or if we have more functionally conceptions of form in mind, according to which forms play the role of arranging or organizing of the material components, then it seems the matter which composes the hylomorphic object does also exhibit the very same form as the hylomorphic compound itself. Because if we have the former simple conception of forms in mind, the material components of the hylomorphic compound are geometrically arranged precisely in the same way that the object as a hylomorphic compound itself is arranged. If we consider the latter conception of form, "we are still left with the fact that so long as it [(form)] is some sort of arrangement or organization of the material components, then any object which has the same matter as another will at any given time have its matter identically so arranged or organized as the object it shares its matter with at that time." (Sidelle, 2014, p. 399) To make a distinction between the object as a hylomorphic compound and its material parts, hylomorphists have to mention that, Sidelle holds, the form essentially belong to the hylomorphic compound, and accidentally associated with the matter composing the hylomorphic complex object. But Sidelle properly shows that this way of characterization does not provide any effective hylomorphic solution to the grounding problem. For this response pushes the question one step back, and we can legitimately raise this problem which is similar to the grounding problem: namely, how the very same form belongs to the hylomorphic compound essentially, while it is associated with the material parts only

accidentally. Thus, appealing to formal components, given the aforementioned conceptions of forms, does not solve the puzzle of coincident object (Ibid, p. 401).

The second horn of Sidelle's dilemma, on the other hand, shows that hylomorphic accounts, which propose different conceptions of form which are not accidentally associated with the matter, do not provide a distinctive solution to the grounding problem. In order to avoid the problem indicated in the first horn of the dilemma, Sidelle argues, a robust conception of form is required which can prevent the form from being accidentally associated with the material parts of a hylomorphic compound. This robust conception of form should be taken as a brute fact or primitively ungrounded notion so that it cannot belong to the material components at all even accidentally. Thus, the fact that Goliath, for example, is in the form of a statue, while Lumpl does not have this form, is taken as primitive and does not stand in need of any further explanation. Sidelle believes that the hylomorphic approaches endorsing such a robust conception of forms will be caught in the second horn of the dilemma since similar strategies can be put forward by non-hylomorphic approaches as well. It seems that the hylomorphic thesis (viz. ordinary material objects are in some sense constituted by formal and material components) does not play any role in such a primitive solution. Thus, Sidelle concludes that there is no preference for approaches taking the formal differences between coincident objects as primitive compared to the rival primitive strategies which take other differences such as modal, persistence conditions, sortal as primitive and brute facts. Therefore, the robust conceptions of form do not help hylomorphists to propose a distinctive solution to the grounding problem. Sidelle, nonetheless, is doubtful that such primitive strategies which appeal to a brute difference between coincident objects, in general, really provide a substantial solution to the grounding problem. Because it seems that taking some parts of differences between coincident objects as primitive,

without explaining how these differences arise, might appear that we are dissolving the grounding problem instead of solving it (Ibid, p. 402). Sidelle concludes:

> "Our concerns have all been about what it is to have a given form. So when we think of it geometrically, if form is a part of an object, then since the coincident objects share the same forms, appealing to forms as parts won't provide us with different parts for the objects. And if we think of having a form more robustly, we will be able to state our view in terms of the objects having different parts (because they have different forms), but our explanation of why they differ in these parts will just be our story about why they have different forms, and as I have been arguing, the features of this story that are doing the work have nothing special to do with forms, and are available to any friend of coincidence." (Ibid, p. 403)

4.2.4. Does Sidelle's dilemma threat hylomorphism?

Sidelle's dilemma really challenges the pluralists believing that hylomorphic accounts of ordinary material objects can put forward a **distinctive** solution to the grounding problem. Confronting the mentioned difficulties that Sidelle poses for hylomorphists, if they intend to avail themselves of the hylomorphic solution for the puzzle of coincident objects they are expected to figure out how and with which conceptions of forms, they can avoid from the first horn of the dilemma. The first horn of the dilemma teaches them that the conceptions of form which allow forms simultaneously can belong to the hylomorphic compound essentially and to its material components accidentally should be abandoned. Non-robust conceptions of forms, as Sidelle mentioned, are highly vulnerable to the first horn of the dilemma. For instance, if the form of an object (hylomorphic compound) is treated as a certain arrangement or organization which is exhibited by matter so that the hylomorphic compound is categorized as a member of the kind or species to which it belongs, this conception of forms might lead the hylomorphic theory to be caught in the first horn of Sidelle's dilemma. It might be said we can circumvent this difficulty by stipulating that forms cannot belong to the material parts even accidentally. This arbitrary strategy might evade the first horn of the dilemma, but it directly comes across with the second horn because this arbitrary stipulative condition that forms cannot belong to matter lacks

independent explanatory power to justify this stipulation. Thus, hylomorphists who are eager to offer a solution to the grounding problem must adopt conceptions of forms which cannot be attributed to the matter, even accidentally.

Nonetheless, the first horn of the dilemma is not a serious challenge for all hylomorphic solutions as there are some versions of hylomorphism defining forms differently. For example, I think that Koslicki's account of hylomorphism, with the aid of weak supplementation principle, does not fall prey to this horn of Sidelle's dilemma. For forms, in this theory, is a real component of the hylomorphic compound. The relation between form and matter is not like the relation that a property (e.g., being red) is instantiated in a subject; rather, form is a distinct component which is added to the matter to make a hylomorphic compound which is itself the subject of the instantiations of various properties. F (form) + M (matter) composes O (a concrete composite object); according to this model, F does not even accidentally belong to M, M and F are two distinct proper parts of O. F must be combined to M so that O can be made. M and F do not belong to each other either essentially or accidentally, but both belong to O. It is true, in this theory, that O belongs to an existing kind K owing to F, and we can formulate this idea that F belongs to K essentially. This relation between a kind K and the formal and material components of a particular object which essentially belongs to kind K is endorsed by the principle of restricted composition in Koslicki's theory. But this claim is different from what the first horn of Sidelle's dilemma expresses. We do not mean that forms belong to matter accidentally. Here we should consider another element of Koslicki's theory: unified nature of a composite object; a composite object is a united object despite the fact they are composed of many parts. The parts are many but the object is one, and this unified object is a specimen of the kind K. The material components in addition to the formal ones make a unified object which is the specimen of the

kind K. Thus, the first horn of Sidelle's dilemma is not a serious challenge for some versions of hylomorphic theories with robust conceptions of forms.

What about the second horn of Sidelle's dilemma? Can hylomorphic versions of pluralism, including the discussed account, come up with a **distinctive** hylomorphic solution to the grounding problem? I am doubtful to respond positively, but I intend to illustrate what steps should be taken by hylomophists so that they can avail themselves of a distinctive hylomorphic solution to the grounding problem. They should arm their favored hylomorphic version with independent reasons and justifications that why they can only take the formal differences between coincident objects as primitive. They can argue that taking formal differences between coincident objects as primitive and brute facts, must have an explanatory power, i.e., the form of primitivism would not be only applicable to the grounding problem, rather by this brute fact we would be able to overcome some other philosophical puzzles and problems. But further significant steps should be taken. I think that hylomorphic solutions to the grounding problem fall prey to the second horn of the dilemma because the form, in various versions of hylomorphism, is identified to entities which are not distinctively hylomorphic and available to non-hylomorphic pluralists.

In order to overcome this difficulty, these hylomorphists need to appeal to the *sui generis* conception of form in order to make their solutions distinctively hylomorphic. Hylomorphists might propose different ideas about what they mean by forms, and different conceptions of forms have been put forward into the literature. They might identify forms with philosophically familiar notions such as property or relation, objects, tropes, activities, power (dispositions), sortal features, essences, etc. Hylomorphists can benefit their theories with these philosophical notions based on their philosophical interests, but identifying primitive forms with one of them

cannot yield a distinctive hylomorphic solution to the grounding problem as here the notion of form does not play a distinctive role, and non-hylomorphic pluralists can appeal to such primitive notions as well to justify their claim regarding coincident objects.

The *sui generis* account of form (either universal or individual) is uniquely hylomorphic and cannot be categorized into the mentioned recognized ontological categories. Hylomorphists adopting this conception of form, first of all, need to clarify what they mean by forms which cannot be manifested by other philosophical concepts; second, they need to bridge the gap between this *sui generis* hylomorphic concept and the sortalish properties of coincident objects. If a hylomorphic pluralist is eager to put forward a distinctively hylomorphic solution to the grounding problem, she is expected to ground the sortalish differences between coincident objects based on the primitive *sui generis* conception of forms. However, although the possibility of having such a solution cannot be ruled out, a hard philosophical effort is required to justify it. Indeed, the burden of proof is the responsibility of the proponent of this view.

I agree with Sidelle that the proposed solutions based on various accounts of hylomorphism to the grounding problem are not distinctively hylomorphic as similar strategies are available to non-hylomorphic friend of coincidence. Nonetheless, it is worth noting that this issue is not a serious disadvantage for hylomorphist' advocates of pluralism since the grounding problem is not a distinctive barrier for them. As was discussed earlier in the first chapters, some monists developed the grounding problem to argue against pluralism, and it is mostly known that the grounding problem is a serious challenge for pluralism. In the second chapter, I argued that monists, who believe in objects as real and mind-dependent entities, should take a realist positions regarding objects' *de re* modal properties. Considering the discussion in the second chapter, I believe that even the monists holding realist views regarding composite objects

confront a similar problem. The grounding problem challenges pluralists to give an account of what it is in virtue of which the coincident objects have different sortalish properties, namely modal and sortal ones. I think that we can legitimately ask a similar question from realist monists that in virtue of what a concrete object has its own modal and sortal profiles. A monist (by adopting any theory of composition yields a realist monistic account of composite objects) rejects this view that Socrates and his body, for example, are distinct entities. Suppose she is right, and there is only one object (Socrates) which occupies the region that his body is without being numerically distinct. This object (Socrates) has real *de re* modal and sortal profiles. He could have been a carpenter, he might not have been the husband of Xanthippe, he could not have been a poached egg, and so on and so forth. He also has a sortal property,[44] he is a human being not a tree or a statue. The realist monist metaphysician is expected to provide a satisfactory answer to this question that in virtue of what Socrates has such *de re* modal and sortal profiles. Indeed, from the arguments in the second chapter, she cannot hold that *de re* modal profiles are not metaphysically genuine.

The question is not fundamentally different from the question challenging pluralists that in virtue of what Socrates and his body have their own distinct modal and sortal profiles. The monist metaphysician cannot simply appeal to the material components of Socrates, or the categorical properties that she can successfully ground at least the modal profiles on them.[45]

[44] I will discuss about the relation between sortal and modal properties in the next section.
[45] She might claim that the modal properties supervene on the material ones, but the mentioned serious problems about the supervenience relation are strongly in force in this case as well. Even it is problematic for her to appeal to reductive accounts of modality, most of the proposed reductive accounts of modality are guilty of false advertisement (see: Sider (2003), and the one which is purported to be noncircular viz. modal realism is not ontologically attractive.

Even if she takes a hylomorphic strategy about objects,[46] so that she can ground sortal and modal profiles on non-material (formal) elements, again the question rises that how formal elements are connected to the modal properties. These remarks show that realist accounts of monism come across a similar difficulty which is not fundamentally different from the grounding problem. Thus, the main concern is that in virtue of what an object possesses its *de re* modal and sortal profiles that it has.[47]

The grounding problem, contrary to the false advertisement of some monists, does not threaten the possibility and plausibility of the pluralists' position with respect to the existence of numerically distinct spatiotemporally coincident objects. The problem poses a difficulty for pluralists who believe that the sortalish differences between coincident objects must be grounded in virtue of less controversial aspects of the objects, namely material and categorical properties. Coincident objects share the same material and categorical properties; hence their distinct modal and sortalish properties cannot be grounded in these aspects of the object. But, this difficulty does not exclusively constrain pluralism since monism has a somehow similar problem in grounding the modal and sortal property of an object in the material and categorical properties of the object. Thus, the grounding problem necessarily does not support monism over pluralism as in the basic level, the proponents of both views deal with the same question that in virtue of what

[46] There are hylomorphic monistic accounts of ordinary composite objects. Objects, in these views, are composed or made of formal and material parts, but the composed object is numerically one. To know more about monistic hylomorphic accounts of objects See: Brower (2014), or Oderberg (2007).

[47] The monist might adopt the modal account of essence and hold all the modal properties of a single material object are on a par. For example, such a monist might say that Socrates has both the modal property of being essentially human and the modal property of being essentially Xanthippe's actual husband (as a word-indexed modal property). The monist might deny that being essentially human is somehow more basic or more important than being essentially Xanthippe's actual husband. However, I do believe that there are intuitive reasons to abandon the modal account of essence, and hold at least some modal properties stand in need of explanation. I do not want to argue against the modal account of essence in this thesis. I only intend to clarify that this monist cannot reject pluralists based on the grounding problem. If this monist can hold all the modal properties of a single object are primitive, the pluralists, who have come up with coincident objects based on their theories of composition, might hold that these coincident objects have primitive modal profiles which are all on a par. My objective is only to show that the grounding problem cannot solely settle the puzzle of coincident object in favor of monism or pluralism.

an object has its sortal and *de re* modal properties. Thus, I believe that monism and pluralism's dispute over the existence of coincident entities cannot be settled just by the grounding problem. The reasons to adopt pluralism or monism should be coherently supported from another perspective. For instance, the disagreement between monism and pluralism can be satisfactorily solved based on a plausible theory of material composite object which provides a systematic analysis of ordinary material objects, and which can keep our scientifically informed and common-sense intuitions about the ontological aspects of ordinary material objects. If such a theory is committed to the occurrence of coincident objects, we can legitimately adopt pluralism and look for a general strategy which helps us to ground modal and sortal properties between coincident objects. In the next session, I will explain a general method of grounding modal and sortal properties and try to show how pluralists can safely adopt this view so that they can settle the grounding problem based on it. While I lean towards the hylomorphic accounts of composite objects, the proposed strategy is not hylomorphic, and all realist pluralists can avail their favored theories of this general solution to the grounding problem. Even some accounts of monism can take a similar strategy to ground modal profiles of objects owing to the mentioned fact that the grounding problem is not uniquely proprietary to pluralism. But, here I formulate the solution in a way which is applicable for pluralism.

4.3. The Essential primitivism

As was explained in the previous section, in order to deal with the grounding problem, we need to address a more fundamental question that in virtue of what an object has its *de re* modal profiles. I try to show that the Aristotelian essentialist account of modality inspired by Kit Fine in the current metaphysical literature, can properly address this question, and pluralist can appeal to this theory so that they can deal with the puzzle of coincident objects. But first of all, I am expected to elucidate what I intend by essence in this theory.

The notion of essence, according to this view, is whatever can eventually settle this fundamental question that *what a thing is*. In other words, essences of entities or things (whatever you mean by thing) reveal the nature and identity of those entities or things. In giving an account of what abstract objects are, or of what ordinary material objects are, or what organisms are, etc., the metaphysical theories are providing an account of the essences of these entities. This notion of essence plays an important role in metaphysics for, as far as metaphysics is concerned with the natures of things, we can say that metaphysics is dealing with the essential properties of those things. For example, when we say that what it is to be Socrates as a human being is to be an animal who thinks, we are defining him as an entity that thinking is one of the essential properties of Socrates—thinking is one of the properties that makes him what he is.

This view must not be mistaken for the specific doctrines of essentialism proposed in the literature, namely original essentialism, natural kinds essentialism, haecceitism, etc. These theories try to distinguish the essential and accidental properties of an object with various sets of criteria. They presuppose that an object has essential and accidental profiles, and try to figure out on the base of what we can distinguish these essential and accidental properties. What I mean by Aristotelian essence is not necessarily committed to one of these theories of essentialism, and is potentially neutral to them. While the Aristotelian conception of essence is trying to reveal what a thing is, and whatever is related to this nature can be regarded as an essential feature of the thing, whatever does not directly address the question seeking *what the thing is* is not considered as an essential feature of that thing. Thus, we do not give a set of criteria for how to distinguish the essential and accidental properties, rather this idea means that a thing has an essence, and this essence reveals the nature of the very same thing. When we understand what the nature of an object is, we can come up with the set of criteria that show which aspects of the object are

essential, and which ones are accidental. Thus, this Aristotelian account of essentialism is potentially compatible with any account of essentialism which properly demarcates between essential and accidental features of objects.

Even the Aristotelian concept of essence is not necessarily tied to the way Aristotle himself categorizes the essential and accidental properties. We can adopt this presupposition that a thing has an essence that properly shows what the thing is, but disagree with Aristotle regarding how to categorize essential properties. (According to some account of Aristotelian essentialism, the correct answer to the Aristotelian question that *what an individual is* is to say that the individual is an instance of a substantial kind).[48] In addition, it is worth mentioning based on this view, the essences are not discovered *a priori*, they can be found out by empirical investigations. In order to say what a thing is, we must carefully pay attentions to the scientific discoveries and empirical information which are revealed by the special science pertain the thing in question.

Having this Aristotelian concept of essence in mind, Kit Fine (1994a) argues that the contemporary understanding of essence in terms of modality does not adequately articulate the mentioned conception of essence. Thus, we should give up this idea that necessary properties and propositions are essential ones. He truly explains that there are certain properties that things possess necessarily, but these properties are not intuitively essential to them. Arguing against the modal account of essence, Fine states that the essential properties of a thing are the properties that pertain to that thing's nature or identity, to what it is to be that thing. According to Fine, the notion of essence is more fine-grained and fundamental than necessity, thus instead of analyzing of essences based on necessity, he proposes necessities should be understood in terms of

[48] E.g., see (Loux, 2006, pp. 107-117)

essences.[49] In Fine's understanding of essence, all essential properties are necessary, but the converse does not always hold. There are necessary properties of an object which cannot be regarded as its essential features because they do not manifest anything with respect to the nature of the object, or do not directly address this question that what the object is. Fine's example about Socrates and Socrates's singleton set illustrates this issue. Socrates necessarily belongs to his singleton set, but being the member of this set does not reveal his essential features. Seeing this sort of asymmetrical relation between essence and necessity, Fine holds that the essence (or parts of essences of an object) must be taken as a fundamental and primitive notion which ground *de re* necessary profiles of an object. Fine says that the metaphysically necessary truths can be identified with those "propositions which are true in virtue of the nature of all objects whatever" (1994a, p. 9). Based on this view, the facts concerning what is metaphysically necessary are grounded by the facts about the natures or identities of things.[50] For example, suppose that it is metaphysically necessary that Socrates is a thinking entity; this claim is true in virtue of the nature of Socrates. Socrates is a human being, and the definition of human being, for example, necessitates thinking for its instances or extensions**.** In other words, what must metaphysically (necessarily or possibly) be the case, is restricted by the facts about the essences or natures of things. Thus, the metaphysical necessity of the proposition that Socrates is a thinking entity is grounded by the facts concerning what it is to be Socrates.

[49] Some interpreters, for instance see: Correa (2012), have understood Fine's view about essence and modality, as a reductive account of modality, i.e., modal notions are reduced to the essences. I do not think that modality is non-circularly reducible to essence, and I do not have such an interpretation in mind, rather the essence grounds modality as it is explained.

[50] Similarly, truths regarding logical necessities can be identified with those propositions that are true in virtue of the nature of all logical concepts, or the conceptually necessary propositions can be identified with those propositions that are true in virtue of the nature of all concepts. This view puts forward a similar account for all kinds of necessities including metaphysical, logical, conceptual necessities, etc.

To understand this method of grounding metaphysical modalities to the essences, we should illustrate what it is for a proposition to be true in virtue of the nature of an object or some objects and how this notion is related to the notion of essence. Fine states:

> "[A]ny essentialist attribution will give rise to a necessary truth…However, the resulting necessary truth is not necessary simpliciter. For it is true in virtue of the identity of the objects in question; the necessity has its source in those objects which are the subject of the underlying essentialist claim." (Fine, 1994a, pp. 8-9)

Fine believes that the notion of essence can be identified with "truth in virtue of the identity [nature] of some among the objects" (Fine, 1994b, p. 56). For Fine, the claim that Socrates is essentially a human being is equivalent to the claim that it is true in virtue of the nature of Socrates that Socrates is a human being. In addition, Fine keeps this Aristotelian idea that essence of an entity is accurately shown in the form of real definition of that entity. In other words, to give the essence of a thing is to define that thing, to say what it is by its very nature. In this view, an object is defined by the class of propositions which are true in virtue of its nature (Fine, 1994a, p. 3 and pp. 13-14).

Based on this conception of essence, we can also provide an account of individual essences. The individual essence of any object can be identified with the class of all those propositions that are true in virtue of its nature (Fine, 1994b, p. 55). For example, the proposition that Socrates is essentially a man is part of the essence of Socrates insofar that the proposition is true in virtue of the nature of Socrates. In contrast to the essential truths which concern what is essentially the case with respect to an individual object, Fines distinguishes another significant class of essentialist truths viz. essentialist truths regarding what is essentially the case in accordance with certain groups or collections of objects. For example, Socrates is necessarily distinct from Plato. This metaphysically necessary truth is not held just in virtue of the nature of

Socrates or Plato separately, rather, Fine would say, it is true in virtue of the essence of Socrates and the Plato taken together (Fine, 1994b, p. 54). Thus, in some cases, the metaphysical necessary truths are not simply true in virtue of the nature of a certain object, but rather, true in virtue of the nature of a certain object or the natures of certain objects taken together. Each object, or selection of objects, substantially contributes to the totality of necessary truths; and one can hardly expect to determine from the totality itself what the different contributions were (Fine, 1994a, p. 9).

If metaphysical necessities are grounded as explained above, we can define metaphysically possible properties of an object as properties which are compatible with the essences of it. In other words, a property is metaphysically possible for a thing because nothing in its essence prevents it possesses the property. For example, it is metaphysically possible that Socrates is a carpenter; being a carpenter is possible for Socrates since nothing in his nature prevents him to be a carpenter. (Suppose the nature of Socrates is a human being, being human is compatible with being a carpenter, while this nature rules out the possibility of being a poached egg for Socrates. If someone believes in extreme haecceitism as a true theory of essentialism, the nature of Socrates as a bare non-qualitative individual allows him to be a poached egg, but in general, in all the cases, the real metaphysical possibilities are determined by the nature of Socrates, whatever this nature is). Another example illustrates this issue; it is possible to have a house made out of woods, bricks, metals, rocks, or any other unknown materials. Also, the house can be made in various ways (there are ways for building a house which are unknown to us by this time). The notion of the house has all of these real possibilities in terms of its nature or definitions, i.e., so long as all of these possibilities are in accordance with the nature of the house (whatever it is). The definition of being a house does not rule out the possibility of having

wooden, brick, or metal house, or how the house is made; and if there are impossibilities for making a house they are necessitated by the nature of the house. In this way, the nature mediates in determining the metaphysical possibilities of an object. In this view, the fact that things are definable and have essences is a primitive fact and does not require a further explanation.

According to the mentioned model of understanding of modality and essence, the metaphysically necessary properties of an object are grounded in its essential features. Hence, it is worth clarifying what the grounding relation means when we say metaphysical necessities are grounded in essences. The notion of grounding is introduced as a non-truth-functional operation, which is linguistically articulated by something like 'because' or 'in virtue of ', which is supposed to capture the notion of fundamentality or explanatory priority. In order to keep the necessary condition of ontological priority and dependency, grounding is defined as an irreflexive, asymmetric, and transitive relation which holds between the grounded entity, and what grounds it. These features capture the intuitive idea that to be grounded is to exist in virtue of something else, which is, in some sense, more fundamental than it.

It is believed that the kind of explanation afforded by grounding is not causal explanation[51] (i.e., grounding relations can hold between the facts which do are not causally related to each other. For example, there is no any causal relation between the non-empty sets and their members, but we can hold that the non-empty sets depend on their members). Moreover, grounding is different from a modal notion like necessity, as there are necessary connections which are not asymmetrical (consider Fine's example about Socrates and Socrates' singleton). Furthermore, the grounding relation should be distinguished from the notion of

[51] I presuppose that the grounding relation is different from the causal one; however, it is a matter of controversy among the proponents of the grounding relation. Some grounding theorists speak of grounding as "metaphysical causation". See: (Ricki and Kelly 2016)

logical consequence or entailment. For example, if Q is a logical consequence of P, based on the rule of weakening, we can coherently hold that for any arbitrary assumption F, Q is the logical consequence of P and F. Even though the additional assumption is irrelevant to P and Q, the logical consequence is still in force. But the grounding relation is different. The relation of grounding is only kept when the additional propositions are relevant to the truth of what is grounded. For example, *all humans are mortal*, *Socrates is human*, then it logically follows from these two premises that *Socrates is mortal*. Based on the rule of weakening, we can add this irrelevant proposition that *the Eiffel tower is in Paris* to the premises, thus we have: *all human are mortal*, *Socrates is human*, *the Eiffel tower is in Paris*, then *Socrates is mortal*. This argument is valid, but we cannot say that the fact that *Socrates is mortal* is grounded in the facts that all *human are mortal*, and *Socrates is human*, and *the Eiffel tower is in Paris,* since there is no dependency between Socrates or mortality and the Eiffel tower or Paris.[52]

Among proponents of the notion of grounding, there is a controversy concerning what kinds of entities can stand as the relata of this relation. Gideon Rosen (2010), for instance, defines the grounding as a relation among facts (the relation which holds between entities of the same type). In this model, "A is F in virtue of B's being G, but this is shorthand for the claim that the fact that A is F obtains in virtue of (is grounded in) the fact that B is G." (Rosen, 2010, p.114) According to his view, facts are structured entities which are made out of worldly items objects, relations, connectives, quantifiers, etc. (similarly in way sentences are built up from words), and can be identified with true Russellian propositions (Ibid, p. 114). Here, as it will be explained, I have this notion of grounding in mind when I say that metaphysical necessities are grounded in essences.

[52] To know more about the general features of the notion of metaphysical grounding, see: Ricki and Kelly 2016.

One of the most significant aspects of grounding relation which makes it appealing to the problem in question is that the grounding is a non-monotonic or multigrade relation. Based on this feature, one fact may be grounded in several facts taken collectively; the grounding relation is officially plural on the basic level. This means, roughly, that it can be the case that x is grounded in y, and also grounded in y plus something else – an additional z; for example, the fact about set {Socrates, Plato} is grounded in facts about both Socrates and Plato (not in Socrates or Plato separately). Rosen believes that the failure of monotonicity is a general feature of explanatory relations (Ibid, p. 116). This feature allows more complex features contribute in the process of grounding a fact.

Following the foregoing conception of grounding relation, Finean claim that "whenever p is a necessary truth, p must be grounded in the nature of some thing or things" can be interpreted in this way which makes a connection between different facts: facts concerning the metaphysical modal features of an object, and facts about its essential ones. In other words, facts about the metaphysical necessities of an object are grounded in the fact about the essences of the object.

Rosen holds that existentially general facts are grounded in their instances. Based on this view, if *p* is a metaphysically necessary proposition, the fact that *p* is metaphysically necessary is grounded in the existentially general fact that there are some objects X (or there are collections of objects) (Xs) such that *p* is true in virtue of the nature of the X (Xs) (2010, p. 121). Put differently, what must (metaphysically) be the case is determined by the facts about the natures or identities of things. For example, the facts about what is metaphysically necessary regarding Socrates are grounded in the facts regarding which propositions are true in virtue of the nature of Socrates. The proposition that *Socrates is necessarily a man* is explained in a way that there is some object (Socrates) such that the proposition that *Socrates is a man* is true in virtue of the

nature of this object (the nature of Socrates). Thus, facts about which propositions are metaphysically necessary are grounded in facts about which propositions are true in virtue of the nature of things, this itself is equivalent to the view that the facts about which propositions are metaphysically necessary are grounded in facts about the essences of things.

Likewise, facts about metaphysical possibilities of an object can be explained. If *p* is a metaphysically possible proposition, the fact *p* is metaphysically possible is explained in terms of the existential general fact that there is an object X (or there are collections of objects) (Xs) such that *p* is compatible with the propositions which are true in virtue of the nature of the object. For example, the fact that Socrates is possibly a carpenter is explained in this way: the proposition *Socrates is a carpenter* is explained in a way that there is some object (Socrates) such that the proposition *Socrates is a carpenter* is compatible with the propositions which are true in virtue of the nature of Socrates. (*Socrates is a carpenter* is compatible with the proposition that *Socrates is a man*, but the proposition that Socrates is a poached egg is not compatible with the propositions which are true in virtue of his essence, so it is not a metaphysical possibility for Socrates to be a poached egg (if his essence requires being a man).

Having this model of grounding *de re* modalities to essences of things in mind, we can return to the story of coincident objects, and the *de re* modal properties differentiating them. Coincident objects are distinct entities and consequently, have distinct essences. According to the aforementioned model of grounding modalities to the essences, facts about the modal profiles of each of coincident objects are expected to be grounded in the facts about their own distinct primitive essences. It was mentioned that Goliath does not have the possibility of being squashed into a ball, while Lumpl does. To ground these modal features, we have to appeal to the essences of Lumpl and Goliath as two distinct objects with different essences.

In this example, we have two modal facts. It is metaphysical possibility for Lumpl to be squashed into a ball, and Goliath necessarily is not squashed into a ball. Considering the mentioned account of grounding modality, the former is a metaphysical possibility for Lumpl, and the latter is a metaphysical necessity for Goliath. These modal facts are determined based on the facts about the natures or the essences of Lumpl and Goliath respectively. The nature of Lumpl as a clay statue does not prevent it to be squashed into a ball since when it were squashed, it would be still the same lump of clay as long as the same atoms and molecules are kept. For neither the nature of lump, suppose,[53] is defined as a compact mass of a substance in any shape, nor the nature of clay, e.g., as a stiff, sticky fine-grained earth, does not prevent Lumpl to be squashed into a ball. The squashed lump of clay is still Lumpl as far as the same material components are completely kept. Thus, this essence, if it is true, allows Lumpl as a clay lump to be in the shape of a ball. Thus, we can say that the metaphysically possible proposition that *Lumpl can be squashed into a ball* holds true in virtue of the fact that there is an object (or collections of objects) Lumpl, e.g., such that the proposition holding Lumpl can be squashed into a ball is compatible with the propositions which are true in virtue of the nature of Lumpl.

Similarly, we have to appeal to the essences of Goliath so that we can explain its modal profiles. Goliath is a clay statue, and both the nature of clay and the nature of statue play a significant role in determining the modal properties of Goliath. Goliath does not have the possibility of being squashed into a ball owing to its essence which is the combinations of the essences of both clay, and statue. In the previous chapter in an argument against the sortal primitivism, I mentioned that it is reasonable to imagine an object in shape of a statue constituted

[53] For the sake of simplicity, I just suppose a rough account of the essences of the entities in the example namely, Lumpl and Goliath. My account of these essences might be wrong or might be inadequate, but my idea is that their real essences (whatever they are) truly ground their modal profiles.

from some kinds of elastic and flexible materials which remain its shape or restore it when it is squashed. Thus, being a statue necessarily cannot prevent Goliath to be squashed into a ball, but Goliath is not just a statue, it is a clay statue, and the essences of both elements ground its modal profiles. When a statue is made of clay, it would entirely change its shape or form when it was squashed into a ball. The clay in the form of a ball would no longer be Goliath since the clay in its nature does not have elasticity and flexibility to be restored or remained in the same shape when it is squashed. More precisely, the proposition that *Goliath is squashed into a ball* is metaphysically impossible. So, this proposition is incompatible with the propositions which are true in virtue of the nature of Goliath.[54] All the real modal profiles of Lumpl and Goliath similarly are grounded in the nature of Lumpl and Goliath respectively. This typical example illustrates how the modal profiles of coincident objects can be grounded in their primitive natures or essences.

We presuppose that every known or unknown entity has a metaphysical essence, which is revealed through its real definition, and genuine modal properties of entities are grounded in these real essences based on the mentioned method of grounding. We might come up with a definition of an object, but later we will figure out some *de re* possibilities about the object which are incompatible with the proposed definition of the object. In such cases, we have epistemological ignorance about the true nature of the object, and we need to revise or change the previous definition to give a new account of what the object is. This is a metaphysical claim that things have real essence and definitions, while it is an epistemological concern that whether

[54] To formulate more precisely, we can say there is an object (or collection of objects) that the proposition that *Goliath is squashed into a ball*, is incompatible with the propositions which are true in virtue of the nature of the object (or the collection of the objects).

we have access to these definitions, or if we can eventually grasp what the real definition of the object is. We should not conflate these two distinct philosophical realms.

In addition to modal differences, most coincident objects differ sortally;[55] they fall under different sorts or kinds. Goliath, for example, is categorized under the sort of being a statue, while Lumpl belongs to the sort of being a lump of clay (if we can say there are metaphysically such sorts or kinds). Or suppose Socrates and his body as a lump of tissue; the lump of tissue does not fall under the sort which Socrates belongs to viz. human being. Like modal properties, sortal ones stand in need of explanations, and as argued in the previous chapter, the sortal primitivism, (the view that we can take the sortal properties between coincident objects as primitive and ground the rest of sortalish ones based on them) is not philosophically appealing. Thus, we should address this question: in virtue of what does an object fall under a sort, if it really has sortal properties? Why does Socrates fall under the sort *human being* instead of a sort belonging to another kind of animal? Before, explaining how the sortal differences of coincident objects can be grounded, I have to state some general clarifying remarks regarding sortal properties.

It is a matter of controversy to give an exclusive and exhaustive account of what a sortal property means philosophically, and it is beyond the scope of this project to discuss about it in depth. But I try to illustrate what it means in this context and how it should be grounded. It is also controversial that whether things metaphysically are categorized by real mind-independent sorts or kinds, and have sortal real metaphysical sortal properties, or whether sortal properties are

[55] As was discussed in the third chapter, there is the possibility of coincident objects which both fall under the same sort.

not metaphysically genuine and only appeared in the process of human cognition, or produced by natural languages.

Regardless of the truth or falsity of these views, indeed, only the realist view about sortal properties can coherently hold that the sortal properties are metaphysically differentiating. If sortal properties are just mind-independent or linguistic entities, they cannot metaphysically make a distinction between objects in general and coincident object in particular. Thus, when I am talking about the sortal properties I have the realist view in mind (it does not mean that the anti-realist view is wrong, I just intend that based on the realist account of objects which is presupposed in this thesis, only the real sortal properties can be metaphysically differentiating, and things with different sortal properties are ontologically distinct). I also do not address questions seeking for which sorts do really exist, or whether every generic term in a natural language does have its corresponding sort or kind in the reality or not. Since these important questions are not directly related to the topic in question, I intentionally ignore them. I just try to address this question that if things, especially coincident objects, have real sortal properties, in virtue of what they are grounded.

Considering the above clarifying remarks, I want to argue that if sortal properties are real, and make a metaphysical distinction between coincident objects, they should be treated like modal properties.[56] If they are modal, they should be treated as modal properties and must be grounded in virtue of the nature of the things which possess them in the same way explained earlier. Thus, in order to ground the real sortal properties, I have to show that facts about sortal properties of an object are regarded as metaphysically necessary fact about the object.

[56] It might be said that the sortal properties are essential ones; in this sense, they do not stand in need of any explanations as the essential features are taken as primitive in the defended view.

Sortal properties, *prima facie*, do not look modal. Socrates actually falls under the sort of being human, and the fact that Socrates is human seemingly can be counted as one of his categorical properties. But can we say Socrates could have been a poached egg? Goliath categorically falls under the sort of being a statue, but is it possible that it remains Goliath but falls under the sort of being a car? If we give a negative answer to such questions, we mean that it is impossible for an object to cease to be the member of the sort that it actually belongs to and still keeps its identity. In other words, we implicitly endorse things necessarily or even essentially have their sortal properties.

If we deny the above possibilities, and hold that things can vary sortally without losing their identities, we implicitly welcome the view which is a version of extreme haecceitism according to which a thing is treated as bare non-qualitative entity which can possibly adopt various (even opposite) qualitative properties in other circumstances or different possible situations.[57] Proponents of this view reject the fact that sortalish properties and differences are necessary, but they cannot hold that coincident objects are distinct in terms of sortal properties. I do not mean that they should give up pluralism as they can maintain coincident objects have different non-qualitative identities, and they are distinct; rather they cannot coherently state that these objects are sortally distinct. For if an object can vary sortally, nothing does constrain Lumpl to actually fall under the sort of being a statue. Lumpl and Goliath are exactly the same in terms of all the categorical properties that they both have. If nothing necessarily constrains Lumpl to fall under the sort of being a lump of clay, why should we think that Goliath and Lumpl are sortally distinct? The proponents of this view might say that Lumpl and Goliath are sortally identical in the current situations, but both might have had different sortal properties.

[57] See Penelope Mackie (2006, chapter 9) and David Lewis (1986, Ch. 4).

Thus the sortal differences cannot necessarily make a distinction between coincident objects as their identities are not necessarily hinged to their sortal properties.

While I lean toward the first view, here I am not in the position of arguing for or against these views regarding the sortal properties. Rather, my objective is to show if we take the former strategy, sortal properties should be treated like necessary properties, and consequently are grounded like other modal properties of coincident objects (if we adopt sortal essentialism, sortal properties are essential and define what the objects are, so they do not stand in need of any further explanation). And, if we take the latter position regarding the sortal properties, we can coherently say that coincident objects do not differ sortally, thus no explanation is needed to ground their so-called sortal differences. So, if Goliath is a statue, and Lumpl is a lump of clay, and they are distinct in terms of these sortal differences, they both have their sortal properties necessarily. In other words, the fact that Goliath is a statue is a metaphysical necessity, and is grounded in the fact regarding the essence (or essences) of Goliath. Following the mentioned model of grounding, the proposition that *Goliath is a statue* is a metaphysically necessary proposition which is explained in this way that there is some object (or there are collections of objects) such that the proposition that *Goliath is a statue* is true in virtue of the nature of that object (or objects). In the same vein, the fact that Lumpl is a lump of clay can be explained.

The solution which is defended in this chapter is a kind of primitive strategies; **the essential primitivism**. According to this view, facts about the essential features of coincident objects are taken primitive, and the mentioned sortalish differences between namely modal and sortal ones are grounded upon the primitive essential facts. In the previous chapter, I examined the alternative proposed versions of primitivist solutions to the grounding problem, and argued that each of them is suffering from sorts of serious problems making them philosophically

unattractive. Comparing the essential primitivism with the views discussed in the third chapter (modal plenitude primitivism, sortal primitivism, and identity-based primitivism), I will argue that the essential primitivism has a clear preference with regard to the puzzle of coincident objects, and does not come across the problems which its competitors confront.

4.3.1. Essential primitivism vs. modal plentitude primitivism

Modal plentitude primitivism, as was explained in the third chapter, takes the instantiation of all the extant modal properties between coincident objects as brute facts. While in the essential primitivism, in contrast to Bennett's modal primitivism, modal properties are explained in virtue of the nature or the essence of the objects. In other words, the modal properties, which cry for explanations, are not left ungrounded. In general, it is fair to say that modal properties seem puzzling and stand in need of elucidation based on some more fundamental notions. Thus, generally when there are two theories which are on a par in terms of their simplicity and explanatory powers, the one which plausibly explains modal properties, is preferable. Thus, the essential primitivism, in general, is preferable to the views which take the modal properties as primitive.

One of the main arguments that I raised against Bennett's theory is that her modal theory is tailored precisely as an ad-hoc solution to solve the grounding problem, and it is not applicable to the other philosophical puzzles and disciplines. The essential primitivism does remain entirely immune to this criticism. The essential primitivism is entirely based on essentialist account of modality which is one of the most significant representative theories about modality in the current literature[58]. According to this theory, ubiquitous notions of alethic modality including metaphysical, logical, conceptual, mathematical, physical, etc. are grounded in a more fine-

[58] To know about the significant of the essentialist account of modality in the current literature see: Ross P. Cameron (2010)

grained and fundamental notion viz. the essence. So, the essential primitivism which is rooted on the essential account of modality is not exclusively proposed to settle to the grounding problem.

Another extreme difficulty in Bennett's view is the ontological cost of this theory. As was discussed in details, Bennett's solution requires commitments to an extremely bizarre ontology that a huge number of peculiar objects are aligned with the possible combinations of modal properties instantiated in a spatiotemporal region that the recognized coincident objects exist. That is to say, this solution extremely multiplies the numbers of coincident objects without providing reasonable justifications for them. On the contrary, the essential primitivism not only multiplies the numbers of coincident objects but also remains ontologically silent about the numbers of coincident objects. In other words, this solution to the grounding problem is ontologically neutral to the number of coincident objects. It is intuitively known that a region might be occupied by two coincident objects, but maybe a plausible theory of composition entails the existence of more coincident objects. The essential primitivism is compatible with both views because this solution does not necessitate how many objects there are; rather it just puts emphasis that every recognized object has an essence which reveals what the object is. The numbers of coincident objects are determined by a plausible theory of composition, not by the solution to the grounding problem. Thus, the essential primitivism does not extremely multiply the number of coincident entities.

4.3.2. Essential primitivism vs. Sortal primitivism

According to the model of essential primitivism, if sortal properties metaphysically distinguish between coincident objects, they have to be treated as modal or essential properties. Put differently, sortal profiles of coincident objects are either parts of their essential ones or grounded in them. Even though the sortal properties are regarded as essential, it does not

necessitate that all the modal properties of an object are grounded upon this essential sortal properties. According to the essential primitivism, an object can have a bunch of different essential properties, and all the modal properties are grounded in virtue of these essences altogether. For example, as mentioned above, the fact that Goliath does not squashed into a ball is not necessarily explainable in terms of the essential property that Goliath is essentially a statue; rather, the collections of things are involved in the essence of Goliath as an individual and the all *de re* modal properties of Goliath are explainable in terms of the all of those things. Thus, this view is different from this version of essentialism which endorses that if an individual object falls under a certain sort or kind, all the essential properties of that individual are determined by that sort or kind.

Having this distinction in mind, I think the essential primitivism properly can address the problems with respect to the grounds of modal profiles of coincident entities which are sortally indistinguishable. Suppose Kit Fine's example in the third chapter; it is possible to have two coincident letters which have different modal properties, while both objects fall under the same sort (letter, e.g.). Sortal primitivist strategies are unable to ground these modal properties, but the essential primitivism defended in this chapter, can give an account of in virtue of what the letters have different modal properties. Each letter, as an individual, has its own essential characteristics and many elements and things are involved so that each letter has its own essential characters.

Even if we believe that sortal properties are essential ones, the two letters share some essential characters and owing to this fact they have some similar modal profiles, but it does not mean the all the essential characteristics of them are exhaustively determined by the sorts which they belong to. They are different individual letters and have different essential properties. In this case, we can say that, for examples, the intentions of the author create different letters. The

author had different intentions when she wrote the letters; albeit, she used the same words and all the material components of the letters are the same. (I do not mean that letters as an artifact definitely have essential characteristics which are rooted in the intentions of the creators. This view might be true or not. I only state that if there are real modal differences between coincident objects which are sortally identical, the modal differences are grounded in the essential differences. Objects might share some essential characteristics, and differ in other essential features. Therefore, the essential primitivism does not face the thorny difficulties that sortal primitivist strategies do.

4.3.3. Essential primitivism vs. identity-based primitivism

As was explained, the most serious problem that deRosset's identity-based primitivism comes across is that how the identity properties (as unique non-qualitative properties) of coincident objects are connected to qualitative modal and sortal properties. The essential primitivism potentially does not face this problem as the essences are not stipulated as non-qualitative properties which cannot be possessed by other entities. This theory is silent about how to make the essential/ accidental distinction; nonetheless, to define an object, we do not necessarily need to appeal the non-qualitative properties as essences are not necessarily non-qualitative properties.

Even were we to adopt an extreme haecceitist position as a true theory of essentialism, we would not face the problem of connecting qualitative *de re* modal properties to the essential ones. The reason is that, according to extreme haecceitism, there are no qualitative constraints on what necessary *de re* modal properties of an individual might be, and the necessary features of an individual are non-qualitative as well. In other words, all the qualitative properties are metaphysically possible for the individual owing to the nature of being a bare particular. Thus,

there is connectivity between the essential and necessary modal properties of an individual and both are non-qualitative. Hence, the gap between qualitative and non-qualitative has disappeared. Therefore, the essential primitivism does not fall prey to the serious difficulty that deRossett's identity primitivism does.

Conclusion

In this thesis, I have explored various approaches to the puzzle of coincident objects which, as pluralists believe, share exactly the same physical characteristics, occupy the same region of space-time, but are different with regard to their sortalish (particularly modal and sortal) properties. Monists, who believe that the region of spacetime is occupied by only one single material object, argue against the possibility and plausibility of the pluralists' positions viz. the existence of numerically distinct spatiotemporally coincident objects. The most important argument that monists have put forward against pluralism is known as the grounding problem, based on which they raise the question: what grounds the sortalish properties if they are the only source of distinction between the coincident objects. Put differently, if coincident objects share the same non-sortalish properties and only differ in their sortalish properties, in virtue of what are the sortalish differences are grounded.

Prima facie, the argument creates a problem for pluralists, who have to deal with the challenge of overcoming the grounding problem by providing a satisfactory explanation for the sortalish differences between coincident objects. But, as I argued in the second and fourth chapters, a similar difficulty challenges monism. Monists, who contend that the region of spacetime can only be occupied by a single object, and so-called (according to them) coincident objects are metaphysically identical, are supposed to explain how we can attribute two different contradictory modal properties to an object. For example, Lumpl has the possibility of being squashed into a ball, while Goliath does not have this *de re* modal profile. If they are identical (as monists claim), how can we attribute different (even contradictory) modal profiles to the same object at the same time? In other words, they have to clarify how is it that the apparent modal differences, in cases like Lumpl and Goliath, cannot make a distinction between the objects.

To address this question, I showed monists can maintain that the modal properties do not metaphysically make a distinction between objects (they are not differentiating properties), and in order to justify this claim, they have two strategies at their disposal. They can take a deflationary position about modality in general, and concede that there are modal differences between coincident objects. These modal differences, however, are not substantial features of reality; they are generated based on linguistic or nominal conventions that we already accept. Another approach that monists can adopt towards modality to explain the apparent modal differences coincident objects is a version of Lewisian counterpart theory, by appealing to which, they can maintain coincident objects are identical, claiming that the modal properties of the objects could be reduced to the categorical properties of their counterparts.

In the second chapter, I took up the validity of the aforementioned strategies and assessed them based on the monist's capability to solve the problem concerning the apparent modal differences between coincident objects. I suggested that modal deflationism and counterpart theory— used as proposals for explaining away the apparent modal differences between coincident objects— create fundamental problems which make the theories untenable regarding the puzzle of coincident objects in support of realist monism; this can be regarded as a contribution to the contention that pluralism is not an implausible view.

Realist monists, who are eager to appeal to deflationism in reference to modality, hold that there is a genuine object, and there are conventional *de re* modal properties that cannot metaphysically influence the identity of the object. It was demonstrated that the two aforementioned components are not compatible. This suggests that this view is not consistent enough to support monists' position that the region of spacetime is occupied by a real single material composite object, which might have different conventional *de re* modal properties. One

can be a deflationist regarding modality and maintain that modal properties are not real, mind-independent features of the world. The proponents of this view, however, must accept that objects are not mind-independent either, and this, in itself, poses a serious obstacle for realist monists who believe that modal properties are not differentiating.

If the deflationist strategy does not work for realist monists, they might intend to appeal to Lewis's counterpart theory to show that the pluralist conclusion is not to be derived from the premises that Lumpl and Goliath have different modal profiles. Lewisians can rebut the pluralist modal argument about the existence of coincident objects since for any token instance of such an argument, counterpart-theoretic interpretation shows that either the argument is invalid or the premises are false. Lewis's theory can invoke different counterpart relations for the same objects based on relevant similarity criteria; it can explain the modal differences between Lumpl and Goliath based on the categorical properties of the denizens of other worlds without requiring any differences between them in our world. I believe that this approach towards the puzzle of coincident objects is successful if it is able to keep the advantages of counterpart theory without being committed to modal realism, which is a peculiar view facing various compelling objections. My main argument, here, was that monists cannot appeal to counterpart theory without accepting the Lewisian ontology.

However, should monists who appeal to modal deflationism or counterpart theory not be able to account for these modal differences, it can be assumed that there are genuine metaphysical differences between coincident objects, and it is plausible to hold that they are metaphysically distinct. In this case, if we can defend the idea that objects can have genuine metaphysical modal profiles (either primitive or derivative), the pluralist account for coincident objects will be supported. Even though this does not solve the grounding problem, pluralism is

indirectly defended because the existence of at least genuine different modal properties does support the idea that Lumpl and Goliath are distinct objects.

Underlining the plausibility and possibility of pluralists' position, I specified the rest of the thesis as an investigation into how the grounding problem can be solved in support of pluralism. Various solutions to this problem have been proposed by pluralists from different standpoints. Some pluralists believe that we can deal with the grounding problem by showing that sortalish properties between coincident objects supervene upon the non-sortalish properties they both share. These philosophers have come up with various forms of supervenience relations which are compatible with the occurrence of coincident objects. As was mentioned in the third chapter, the supervenience-based solutions to the grounding problem do not properly address this issue of how sortalish differences are explained in terms of non-sortalish ones. These theories, at best, show that there is a kind of supervenience relation between coincident objects, but supervenience in itself is not an explanatory tool, while the main challenge of the grounding problem is how sortalish differences are grounded. Due to this difficulty, all the supervenience-based solutions fail to properly solve the puzzle of coincident objects.

The failure of supervenience strategies with respect to the grounding problem rules out the possibility of grounding sortalish properties on non-sortalish ones, and paves the way for primitivist approaches. Thus, I do think it is a tenable position for pluralists to maintain that some more fundamental and less controversial aspects of coincident objects can be taken as primitive or brute facts, and the rest of sortalish differences are explained based on the primitive features making the coincident objects distinct. In this thesis, I explored the explanatory power of the most significant forms of primitivism which have been proposed to settle the grounding problem. Modal plenitude primitivism, sortal primitivism, identity-based primitivism and formal

primitivism (hylomorphic solutions) were all discussed in detail. I tried to show that there are serious obstacles which make these forms of primitivism unappealing with regard to the grounding problem. Showing the serious difficulties of each of the aforementioned forms of primitivism, I put forward a new account of primitivism which does not come across the problems that its competitors do.

I proposed an account of primitivism based on Aristotelian notions of essence which I call 'essential primitivism'. According to this view, which is rooted in the Aristotelian non-modal conception of essence developed by Kit Fine, the essential characteristics of coincident objects are taken as primitive, and the rest of sortalish differences between them, namely modal and sortal ones, are consistently grounded upon the primitive essential properties that each object possesses. The notion of essence, in this view, is whatever can eventually settle the fundamental question that *what a thing is*. In other words, essences of entities or things (whatever is meant by *thing*) reveal the nature and identity of those entities or things.

Based on the non-modal account of essence, we can state that the propositions concerning modal properties of an object are determined by the propositions which are true in virtue of the essence of the very same object. More generally, what must metaphysically (necessarily or possibly) be the case, is restricted by the facts about the essences or natures of things.

Having this model of explanation, I argued that the propositions regarding the modal profiles of coincident objects are grounded upon the propositions which are true in virtue of the essences of these objects. Coincident objects are distinct and consequently, have different essences. As was shown in the last chapter, these distinct essences properly ground different modal profiles of coincident objects.

Along with modal differences, most coincident objects differ sortally; they fall under different sorts or kinds. I argued that if sortal properties are real and make a metaphysical distinction between coincident objects, they must be treated like modal properties and consequently, the facts about sortal properties can be explained in virtue of the facts about the essences of the coincident objects which fall under different sorts.

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