

M-COMBINATORIALISM AND THE SEMANTICS OF SQML

A Thesis

by

ROBERT K. DRIGGERS

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

May 2011

Major Subject: Philosophy

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Approved by:

Co-Chairs of Committee,	Christopher Menzel
	Robert Garcia
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ABSTRACT

M-Combinatorialism and the Semantics of SQML.

(May 2011)

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Dr. Robert Garcia

The Simplest Quantified Modal Logic (SQML) is controversial because it seems to conflict with some of our most basic intuitions about what is possible and what is necessary. Two controversial principles, the Barcan Schema (**BS**) and Necessary Existence **NE**, are valid in SQML models. Informally expressed, **BS** requires that, if it is possible that something is *F*, then there *is* something that is possibly *F*. This result seems to conflict with the intuition that there is some property *F* such that *F* could have been exemplified, though is not possibly exemplified by any existing thing. **NE** conflicts with the intuition that there could have been more/different existents than there actually are and the intuition that those things that actually exist could have failed to exist. The primary goal of this thesis is to provide a semantics for SQML that justifies the validity of **BS** and **NE** with these intuitions in mind. This is the focus of the fifth section of the thesis. In the first four sections of the thesis, I discuss prior attempts to meet my primary goal, all of which I consider unsuccessful.

According to my view, which I call M-combinatorialism, the world is comprised of simples, mereological sums of those simples and universals that the former objects

exemplify. I argue that we can justify the validity of **BS** by appealing to these facts about simples and sums: (1) simples are arranged such that the sums of these simples exemplify certain properties, (2) the actual arrangement of any given number of simples is a contingent matter and (3) had the simples that are actually arranged to form the complex objects in the actual world been arranged differently, the sums of these simples could have exemplified radically different properties.

Insofar as Combinatorialists construct all possible individuals only out of actual individuals, they are committed to the necessary existence of those actual individuals, which allows the M-Combinatorialist to justify the validity of **NE**. So, the M-Combinatorialist is able to provide an adequate semantics for SQML. In the final section, I defend my view against objections.

DEDICATION

I would like to dedicate this thesis to Eyeball Hat-man, Mootrix, Moose, and E. Claire.

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1. INTRODUCTION

The Simplest Quantified Modal Logic (SQML) has caused controversy among metaphysicians because it seems to conflict with some of our most basic intuitions about what is possible and what is necessary. Two controversial principles, the Barcan Schema (**BS**) and Necessary Existence (**NE**) are valid in SQML models (Sider, 2010). **BS** requires that, if something is possibly ϕ , then there *is* something that is possibly ϕ . For example, if something is possibly a child of the pope, then there must exist something that is possibly the pope's child (Menzel, 2010). This result seems to conflict with what I call the **essentialist intuition**, the intuition that there is some property θ such that θ could have been exemplified, though is not possibly exemplified by any existing thing (e.g, there could have been a child of the pope, though no existing thing could have been that child.) **NE** requires that everything that exists necessarily exists. **NE** conflicts with the intuition that there could have been more/different existents than there actually are (call this intuition **Aliens**) and the intuition that those things that actually exist could have failed to exist (call this intuition **Absentees**) (Lycan 304-12, Nelson 278). Because the validity of **BS** and **NE** conflict with these basic intuitions, we have cause to abandon SQML. The primary goal of this thesis is to provide a semantics for SQML that provides reasonable justification for the validity of **BS** and **NE** with these intuitions in mind. I am not, however, the first to attempt to give SQML a justifiable semantics. In the first two sections of the thesis, I discuss prior attempts to meet my primary goal, all of which I consider unsuccessful.

This thesis follows the style of *The MLA Handbook*.

In the first section, I describe Meinongian and possibilist semantics for SQML, with the promise that these are semantics I ultimately reject. Meinongians believe that there *are* some objects which fail to exist, which they call subsisting objects (Meinong 78-81). Possibilists believe that there exist some objects that do not actually exist, which they call *mere possibilia* (Menzel). In previous works, many who reject Meinongianism and possibilism tend to conflate the two theories, which I believe has caused some undue confusion. So, one secondary goal of this section is to clear up that ambiguity by giving a full and fair explication of both theories. Another secondary goal of this section is to provide a detailed account of how both theories manage to provide a semantics for SQML while retaining revised versions of the intuitions mentioned above. The reason I offer for rejecting both theories is their extreme lack of ideological and ontological economy: both theories are able to achieve expressiveness only at the direct cost of positing new primitive concepts and strange metaphysical objects (Menzel, 2010). That being said, the primary goal of this section is not to quibble over the details of each theory, but to point out a theoretical structure present in both theories that, I argue, ought to be dispensed with.

In the second section, I give a brief description of the thesis of actualism and its relationship to the intuitions described above. Actualists reject Possibilist/Meinongian metaphysics in favor of a ideologically and ontologically simpler theory: Actualists hold that everything that *is* exists and *is actual* (Menzel, 2010). Many (if not, most) Actualists reject SQML because it (1) conflicts with the intuitions outlined above and (2) is traditionally conceived as a logic requiring either a Meinongian or possibilist semantics.

Another primary goal of this thesis is to contest these prevalent beliefs about SQML, and in so doing, to provide a fully actualist semantics for SQML.

Again, I am not the first to attempt to achieve such a goal. So-called *proxy actualists* believe that SQML can be given an actualist semantics if we accept their unique modal metaphysics (Bennett, 2006). There are two forms of proxy actualism: the first was developed by Bernard Linsky and Edward Zalta and the second by Alvin Plantinga.

Linsky and Zalta develop their semantics around the (nontraditional) idea that the categories of concreteness and nonconcreteness are not modally rigid—some objects are only contingently nonconcrete. These contingently nonconcrete objects serve as the truthmakers for claims about supposedly nonactual, possible individuals (445-51). After explaining how the authors make sense of the validity of **BS** and **NE** along with the intuitions outlined above, I offer reasons to reject their theory. The primary reason I offer is that Linsky and Zalta’s system is only superficially different from Meinong’s. The secondary reason I offer is that Linsky and Zalta’s rejection of the traditional view that existing nonconcrete and concrete objects are necessarily so requires such a break from our intuitions about the modal rigidity of those categories that their theory cannot be seen as an improvement over Meinongianism and possibilism (Menzel, 2010).

After giving reasons to reject Linsky and Zalta’s proxy actualism, I move on to Plantinga’s form of proxy actualism. Plantinga holds that there exist individual essences, where an individual essence is “... a property E which is exemplified in some possible world and is such that, in every possible world, for every x, if x has E then: (a) x has E

essentially and (b) in no world does anything distinct from x have E . (Jager, 337).

Plantinga's individual essences function in much the same way as Linsky and Zalta's contingent nonconcretia. After describing how Plantinga's individual essences allow him to make sense of the validity of **BS** and **NE**, I argue that his form of proxy actualism is preferable to Linsky and Zalta's, due to its eschewing of the Meinongian/Possibilist theoretical structure. Having argued that, I provide reasons for rejecting Plantinga's system and conclude that proxy actualism is a failed project (Menzel).

In the fifth section, I argue for a combinatorialist semantics for SQML.

Combinatorialists believe that nonactual, possible worlds and individuals must be constructed entirely out of the existents of the actual world rearranged in different patterns (an idea that needs clarification) (Lycan, Armstrong). I am not the first combinatorialist: in the first half of this section, I consider (and ultimately reject) a form of combinatorialism first developed by D.M. Armstrong.

Armstrong holds that the world is fundamentally comprised of states-of-affairs, whose (non-fundamental) constituents are simples and properties (38-53). Armstrong also holds that the only states-of-affairs that exist are those that actually exist: all nonactual, possible states-of-affairs are merely fictional objects. In its original form, Armstrong's combinatorialism is inadequate for a semantics of SQML. **BS** clearly requires that if something is possibly ϕ , then there *is* something that is possibly ϕ . Since Armstrong excludes the existence of nonactual states-of-affairs and since states-of-affairs are individuated solely by their abstract constituents, then, for some ϕ , there exists no state-of-affairs that could have been ϕ .

I attempt to remedy this problem by adding additional ideology to Armstrong's theory: I introduce the notion of obtaining and non-obtaining states-of-affairs (Plantinga, 257-8). With this addition to Armstrong's ontology and ideology, I provide a semantics for SQML. However, I do so only to demonstrate the futility of such a move: I argue that the obtaining/non-obtaining distinction is a return to Meinongian ontology. Thus, I conclude that Armstrong's combinatorialism is not adequate for providing a semantics for SQML.

In the next section, I describe my own view. According to M-combinatorialism, the world is comprised of simples, mereological sums of those simples and universals that the former objects exemplify. I argue that we can justify the validity of **BS** by appealing to these simple facts about simples and complex objects: (1) simples are arranged such that the sums of these simples exemplify certain properties in addition to the properties that the simples exemplify (2) the actual arrangement of any given number of simples is a contingent matter and (3) had the simples that are actually arranged to form the complex objects in the actual world been arranged differently, the sums of these simples could have exemplified radically different properties (van Inwagen).

Insofar as combinatorialists construct all possible individuals only out of actual individuals, they are committed to the necessary existence of those actual individuals. This fact, along with the fact that universals necessarily exist, allows the M-Combinatorialist to justify the validity of **NE**. So, the M-Combinatorialist is able to provide an adequate semantics for SQML.

In the penultimate section, I consider the objections to M-Combinatorialism. William Lycan originally offered the first objection I consider. Lycan argues that no form of combinatorialism can grant the truth of **Aliens** and **Absentees**. I acknowledge that I owe Lycan and those who hold fast to **Aliens** and **Absentees** (which are *prima facie* incompatible with the validity of **NE**) an answer. First, I provide a (slightly revisionary) way of understanding **Aliens** and **Absentees** that *is* compatible with M-Combinatorialism, with the suggestion that many of our intuitions can be captured by my theory. However, I acknowledge that I am committed to the necessary existence of simples, sums, and properties. In response, I carve up modality into two forms: world-relative and world-neutral modality, where M-Combinatorialism is only compatible with the former kind of modality. I argue that the M-Combinatorialist should hold that world-neutral modality is not a legitimate form of modality. So, I conclude that SQML should be interpreted as a logic of world-relative possibility with a combinatorialist semantics.

Next, I consider the objection that M-Combinatorialism fails to take into account intuitions about individuals having essential properties. M-Combinatorialism individuates mereological sums only by their constitutive simples, leaving the possibility open that, for example, Bertrand Russell could have been a poached egg. To accommodate this intuitive difficulty with M-Combinatorialism, I utilize Armstrong's conceptions of thin and thick particulars to argue that (1) there is ambiguity in what our proper names refer to and (2) the quantifiers of SQML must be interpreted as ranging over thin particulars only. I conclude that the M-Combinatorialist would be best served

to drop essentialist intuitions completely. With these objections met, I conclude my thesis.

2. THE CONTROVERSY OVER SQML

In this essay, I will be defending the view that the Simplest Quantified Modal Logic (SQML) is an adequate logic for formalizing modal statements and modal reasoning, if we understand the semantics of SQML as I do. While most of my attention will be directed towards developing and defending my semantics of SQML, I want to take a brief moment to explain why we need a modal logic like SQML in the first place.

The primary goal of developing a logic of any kind is providing a medium in which our reasoning about the world can be more closely scrutinized. One logic L1 is more expressive than another L2 insofar as L1 is able to adequately formalize more of our reasoning about the world than L2. Standard propositional logic and first-order predicate logic are useful for formalizing statements and reasoning about the actual world, the world we are most acquainted with. However, many believe that (1) the way that the actual world happens to be is only one of many ways that it could have been and (2) there are certain features of the actual world which must remain the same regardless of changes in other features. Standard propositional and first-order predicate logics are not expressive enough to handle claims about how the world could have been or how it must be, as they merely help us describe how the world actually is. Hence the development of modal logics like SQML—logics with the formal machinery necessary for formalizing modal reasoning.

SQML is a simple extension of classical predicate logic with a necessity operator, \Box and a possibility operator, \Diamond .¹ SQML models have two domains, a domain of individuals and a domain of “worlds.” The first domain is for interpretation of the quantifiers and the second domain is for interpretation of the modal operators. The modal operators are understood semantically as quantifiers over possible worlds.² The extension of classical predicate logic with of modal operators allows for logical representation of *de re* modal statements, which are formalized as an individual’s having a certain property in a certain world.

It is important to note that SQML is a *fixed-domain* modal logic unlike variable-domain modal logics like the Variable Domain Quantified Modal Logic (VDQML). Models of SQML contain only one domain, D , for interpreting the existential and universal quantifiers. Regardless of which world is the world of evaluation, the quantifiers only range over the members of that fixed domain. In models of VDQML, each world w is assigned a domain of its own (Menzel) and the (main) quantifier of a quantified formula evaluated at w ranges only over w ’s domain.

As a direct logical result of SQML’s containing only one domain for the interpretation of the quantifiers, certain controversial schemas turn out valid. Because one of the primary goals of this paper is to justify the validity of these schemas in the

¹ See Sider, *Logic for Philosophy* for the language of SQML that I will employ throughout this paper.

² That is not to say that treating modal operators as quantifiers over possible worlds is uncontroversial. Bennett argues in “Two Axes of actualism” that the extensional treatment of possible worlds is a primary cause of the confusion about the semantics of quantified modal logic.

face of controversy, we must consider what these schemas suggest about the relationship between the actual world and other possible worlds and why the validity of these schemas is so controversial.

The schema that has received the most attention is the Barcan Schema:

$$\mathbf{BS}: \diamond \exists x \phi \rightarrow \exists x \diamond \phi$$

Consider the following instance of **BS**: $\diamond \exists x Fx \rightarrow \exists x \diamond Fx$. Let the predicate ‘F’ stand for “is a child of the Pope.”³ Loosely translated, the formula reads, “If a child of the Pope possibly exists, then there exists something that is possibly a child of the Pope.” Regardless of our positions on the semantics of SQML, the antecedent of **BS** seems fairly uncontroversial: after all, we all agree that the Pope, who in fact has no child, is nevertheless a fertile male who could have had one, or, if infertile, a male that could have been fertile and could have had a child. However, many disagree about the truth of the consequent, as it suggests that there is some existing thing that could have been the Pope’s child. Those who deny the truth of the consequent believe that nothing that exists could have been the Pope’s child: they deny that any existing thing could have been a child of the Pope due to intuitions about the essential features of the child of the pope. For example, it is a common intuition that our genetic origins are essential to our identity. The claim is that given the essentiality of the biological origins of currently existing persons and the Pope’s child, no existing person could have been the Pope’s child rather

³ I will be using the example of the Pope’s child throughout this paper. We should assume that the Pope never has and never will have a child. The Pope’s child, then, is intended to be an example of something that does not actually exist, but *could have* existed.

than the child of her actual parents. Because I will be referring to this intuition later, it will be helpful to give it a name and a definition:

The Essentialist Intuition (EI): For some property θ , θ could have been exemplified, though no actually existing thing could have exemplified θ .⁴

I will have much to say about **BS** and **EI** later, but for now, let's move on to the next controversial schema.

Consider the second controversial schema to be discussed in this paper, the Necessary Existence schema:

NE: $\forall x \Box \exists y x=y$

Semantically, **NE** states that everything that exists necessarily exists: every person, table, chair, quark, etc. cannot have failed to exist. Why? Because, unlike in VDQML, the quantifiers in SQML range only over one domain of individuals, regardless of which possible world is under consideration. Semantically, this means that, because every individual in the domain inhabits every possible world, every individual necessarily exists. There are several intuitive difficulties with accepting the validity of this schema, but I will only mention those at the forefront of the debate over SQML.⁵

⁴ Bennett, for example, seems to have this intuition. She writes, “[The Barcan Schema] entails the existence of a thing that has the modal property *possibly being a Jabberwock*--a commitment fully compatible with actualism as long as the potential Jabberwock actually exists [...]. The problem is that few of us believe that that is the case; few of us believe that any actually existing object could be a Jabberwock.” (“Two Axes of actualism,” 301) A Jabberwock is her example of a thing that could have existed though it doesn't in fact exist, never has, and never will.

⁵ For example, I will not discuss the worry that SQML is incompatible with the proposition that God is the only individual that exists necessarily. In SQML, all members of the domain of

NE is incompatible with the related intuitions that the world could have had more, fewer, or different existents than it happens to have. Because I will be referring to these intuitions later in this paper, it will be helpful to give each intuition a separate name and explicit definition.⁶

Aliens: There could have been something that doesn't actually exist.

Absentees: There is something that could have failed to exist.

I take most of the controversy surrounding SQML to result from the counterintuitiveness of **BS** and **NE**. So, I take it as a primary desideratum of any semantics of SQML to justify the validity of these schemas by (1) offering unique interpretations of intuitions like **Absentees**, **Aliens**, and **EI** and then (2) demonstrating how the validity of **BS** and **NE** are not in conflict with those intuitions. All of the views I consider in this paper employ this general strategy.

There have been many attempts to give SQML a viable metaphysical interpretation and this paper is a continuation of that project. Each attempt to justify SQML involves developing a unique metaphysical theory of modality. Unfortunately, not all of the metaphysical theories used to justify **BS** and **NE** are attractive in their own right, as they require us to radically change some of our most basic intuitions about what exists and how it exists. The goal of this paper is to provide an interpretation of SQML

quantification are necessary existents. God exists necessarily along with you and I, tables and chairs, subatomic particles, etc. I take this to be a worry for theistic readers to keep in mind about SQML.

⁶ The terms 'Aliens' and 'Absentees' and their definitions (with some modification) are borrowed from Nelson and Zalta (287). Bennett, Lycan and Plantinga share these intuitions.

that justifies the validity of **BS** and **NE** without requiring a fundamental shift in our metaphysical worldview. However, my attempt to defend SQML is certainly not the first. So, in the following sections, I will explicate different attempts to provide an interpretation of SQML and show how those views justify the validity of **BS** and **NE**. The first two semantics of SQML I will consider are Meinongian and possibilist semantics.

3. THE UNBEARABLE ONTOLOGY OF (POSSIBLE) BEING

Both of the semantics I explicate in this section rely on reinterpreting the linkage between the concepts of *actuality*, *existence*, and *being* to make sense of the validity of **BS** and **NE**. Both theories hold that the domain over which the quantifiers range in an “intended” SQML interpretation includes many more members than we might have previously imagined. The inclusion of these new members is key to justifying the validity of **BS** and **NE**. As I will note at the end of the section, what matters for the purposes of providing a semantics for SQML is not the ontology of each theory, but the common structure that both theories share. Most importantly, it is the rejection of this structure that will guide the theories examined in forthcoming sections. Let’s start with the Meinongian approach, named for the metaphysical theory of objects proposed by Alexius Meinong in his “The Theory of Objects.”

3.1 MEINONGIAN SEMANTICS FOR SQML

Meinong’s ontology of objects is as massive as it is nontraditional. He writes,

Without doubt, metaphysics has to do with everything that exists.

However, the totality of what exists...is infinitely small in comparison with the totality of the Objects of knowledge. (79)

According to Meinong, the “totality of the Objects of knowledge” includes not only those objects that *exist*, but also those objects that *subsist*. Existing objects are the objects we are all already familiar with: living persons, computers, quarks, etc. However, existing objects are only a small subset of “the totality of objects.” The totality also

includes *subsisting* objects, those objects that *are* (in some primitive sense) but fail to *exist*. Nonexistent, subsisting objects are a unique bunch: they have among their kind merely possible objects like the Pope's child, impossible objects like the round square, and abstract objects like numbers and sets.⁷

Note that what it means to “subsist” cannot be explained in more fundamental terms because *subsistence* is a primitive concept in Meinong's theory. In order to make room for this primitive concept, it is fundamental to Meinong's theory to break the apparent intuitive linkage between actuality, existence, and being. In Meinong's theory, “being” and “existence” are not univocal terms—they pick out vastly different kinds of objects. In other words, Meinong breaks the apparently intuitive linkage between being and existence.

If anything is true about the literature surrounding SQML, it's that Meinong's theory is considered a last resort: Meinong's ontology contains strange objects not countenanced by traditional metaphysical theories. For Meinong, given any object of thought, there is a corresponding existing object in the mind-independent world. I suspect, however, that many philosophers have the intuition that there need exist no such corresponding object. Our minds are simply not efficacious in this way. Furthermore, Meinong's commitment to the (mind-independent) existence of every object of thought entails that insofar as we can direct thoughts at objects like square circles, those objects exist. However, it is generally understood that we have no good reason to countenance

⁷ See Parsons for an elegant exposition of Meinongian semantics.

such objects: after all, the fact that square circles are in principle not instantiable might give us good reason to think that they do not exist.

Further, Meinong's ideology contains at minimum two primitive concepts—'existence' and 'subsistence,' reserved for objects that exist and subsist, respectively.⁸ So, why would Meinong posit such strange metaphysical elements and additional metaphysical structure? Because, Meinong would say (and his followers still say), these objects are indispensable to our fashioning a complete picture of reality. Let me explain.

Meinong's theory involves what is essentially a trade-off between ontological and ideological complexity and theoretical unification. Meinong takes his subsisting objects to solve philosophical puzzles regarding the nature of abstracta, impossible objects, nonexistent, possible objects, mathematical objects, and fictional objects. For example, Meinong apparently thought that subsisting objects provide a subject matter for mathematics, as he conceived numbers as subsisting objects (80-1). For our purposes, the application of Meinong's theory to other domains is irrelevant, but it is worth noting that the theory provides a unifying metaphysical framework. Whether the inclusion of subsisting objects, given the counterintuitive results of this inclusion, in our fundamental ontology is necessary is one of the questions addressed in this paper.

⁸ For this point, see Lycan (285). Some readers might be unfamiliar with the ontology/ideology distinction. I have in mind Quine's definitions from his essay "Ontology and Ideology." I repeat them here for the reader's sake.

Quine defines a theory's *ontology* as, "the objects over which the bound variables of the theory have to be construed as ranging in order that the statements affirmed in the theory be true"(11). Of *ideology*, he writes, "Another no less important aspect [of a theory] into which we can inquire is its *ideology* [...]: what ideas can be expressed in it? [...] As a subdivision of ideology there is the question of what ideas are fundamental or primitive for a theory, and what ones derivative. [...] "What matters for metaphysics is absolute ideology, of which Quine writes, "...in absolute ideology we ask what ideas can legitimately be had, or what primitive ideas are given to us as a basis for thinking"(14-5).

Now that I've given a brief picture of Meinong's ontology and ideology, it is time to return to the important question to ask of Meinong's theory: how can subsisting objects be of use in providing an adequate semantics for SQML?

The first obvious point is that the quantifiers of SQML, given this Meinongian framework, range over subsisting objects and existing objects alike. These objects allow Meinong to give a revisionary account of **EI**: for any property θ that is possibly exemplified, though not by any *existing* object, the Meinongian holds that there is some *subsisting* object that could have exemplified θ . This account is revisionary insofar as Meinong takes **EI** to be concerned with existing objects (those objects we are most familiar with) and not the totality of objects of knowledge. Because subsisting objects are so modally malleable, one can consistently hold **EI** with respect to *existing* objects and consistently maintain **BS**.⁹ I'll explain.

Remember that the troubling fact about **BS** is that it seems to invalidate **EI**, the intuition that, say, no existing thing could have been a child of the Pope. Now, the Meinongian can both consistently hold that no existing thing could have been a child of the Pope, while maintaining the validity of **BS**. Why? Because the quantifier in **BS**, given a Meinongian semantics, ranges over subsisting objects as well as existing objects *and* the Meinongian holds that the Pope's possible child is a subsisting object that, had it existed, would have been a child of the Pope. So far so good.

⁹ Of course, if **EI** were understood to be referring to everything that *is* (the totality of objects of knowledge), then Meinong's account would be flawed. However, due to the modally malleable nature of *subsisting objects*, it's difficult to understand how one could consistently hold **EI** and posit their existence. This is an area worth pursuing for the Meinongian.

Also remember that **NE** seemed to be at odds with **Aliens** and **Absentees**, the intuitions that the actual world could have contained more objects that it actually does and that there are certain objects in the actual world that could have failed to exist. Again, the Meinongian has an answer: everything that is (i.e, the totality of Objects of knowledge) *is* necessarily, regardless of its status as an existing or subsisting object. Because the quantifiers of SQML are interpreted as ranging over the (necessarily existing) totality of Objects of knowledge, the Meinongian can justify the validity of **NE**. What drove our initial intuition about falsity of **NE** is the belief that everything that *is* exists. But, Meinong argues, subsisting things, though failing to exist, *are*. Since the quantifier of SQML ranges over those things which *are* and not only over those things which *exist*, **NE** causes the Meinongian no discomfort. After all, existence (though not being) is, in general, a contingent matter for the Meinongian.

The Meinongian is also able to maintain the intuitive appeal of **Aliens and Absentees**, along with the validity of **NE**. There could have existed more objects than actually exist had certain nonexistent, subsisting objects existed. Likewise, objects that actually exist could have failed to exist had they remained mere subsisting objects.

But remember, the Meinongian is able to make sense of the validity of these schemas alongside the appeal of these intuitions at a high price: the Meinongian must posit a whole new array of strange, nonexistent objects and include new primitive concepts into his ideology. The big question in the debate surrounding SQML is this: can we get away with the appeal of Meinongianism without commitment to Meinongian metaphysics? If a metaphysical theory and corresponding semantics can maintain or

explain away **Aliens**, **Absentees**, and **EI** without commitment to Meinongian subsisting objects, then we ought to accept that theory. In the following sections, I will analyze theories that attempt to do just that.

3.2 POSSIBILIST SEMANTICS FOR SQML

There is a view closely connected with Meinong's theory called possibilism, a view that also breaks the intuitive linkage between existence, being, and actuality. Where Meinong broke the linkage between existence and being, the possibilist breaks the linkage between existence/being and actuality. That is, the possibilist holds that, while everything that is exists (*pace* Meinong), not everything that exists *is actual*. The possibilist includes in her ontology existing things that are *only possibly actual exist*, where the thesis that there *are* things that are *possibly* actual but not actual is part of the possibilist's fundamental ideology. These nonactual, possible objects, or *mere possibilia*, as they are often called, are do not *actually* exist: they are only *possibly actual*.; that is, they could have been actual but, in fact, are not actual

Interpreting SQML as the logic of possibilism clears up much of the confusion surrounding SQML, a primary goal of this essay.¹⁰ Possibilists give a revisionary account of **EI**, the intuition that there is a property that could have been exemplified, but not by any existing object. The possibilist agrees that no *actual* thing could have been, say, the child of the Pope; but she also argues that this is not equivalent to the claim that nothing, i.e., no *existing* thing, could have been the child of the Pope. The possibilist denies this latter claim, as she holds that there is a *merely possible object* that, had it

¹⁰ Cf. Williamson for a possibilist semantics of SQML

been actual, would have been the child of the Pope (Williamson, 257-8). The same holds *mutatis mutandis* for any imaginable nonactual, possible object.¹¹

At this point, it should be obvious how the possibilist provides a semantics for SQML. Take **BS**, for instance. Because it is affirmed that there could have existed a child of the Pope, **BS** commits one to the existence of something that is possibly the child of the Pope. The possibilist takes no issue with this commitment: she holds that there is a merely possible object that *is possibly* the child of the Pope. Now, turn to **NE**. The possibilist holds that everything that *exists* exists necessarily and that the quantifiers of SQML range over these existing objects, not merely the subset of actually existing objects (Menzel).

The validity of **NE** ought to make sense, the possibilist holds, if we understand that intuitively contingent beings are only contingently *actual*, not contingently existing. It is with this understanding of the relationship between existence and actuality that we are able to make sense of **Aliens** and **Absentees**—(1) there could have been an object that doesn't actually exist, namely a merely possible object that could have been actual and (2) if 'existence' in **Absentees** is understood as 'actual existence,' then it is true that there are existing objects that could have failed to exist.

As was noted with Meinongianism, the utility of possibilism comes at a cost: possibilism requires us to include *mere possibilia* in our fundamental ontologies. The claim is, of course, that mere *possibilia* are necessary for making sense of modal

¹¹ Again, insofar as **EI** is not restricted to actually existing objects, such a move will be unsuccessful. That is, one might insist that **EI** holds for all existing objects, regardless of their status as actual objects.

discourse. And again, any theory that can retain the expressiveness of possibilism without possibilism's commitments is the preferable theory. However, before I evaluate and attempt to defend a theory that attempts to do without the commitments of Meinongianism and possibilism, I want to make a general point about the identical structure of both theories, as this common structure will be present in a theory I will discuss in the next section.

3.3 THE COMMON STRUCTURE OF THESE THEORIES

I promised earlier that the details of each theory aren't as important as the structure of each theory. In fact, I believe both Meinongianism and possibilism are so similar in structure that it can be difficult to differentiate between the two theories. Let me explain.

Both theories posit a fundamental ontological category — *being* for the Meinongian, *being/existence* for the possibilist — whose members are necessarily members of that category. Both theories, however, include at least two additional subcategories of this fundamental ontological category that many objects in the fundamental category belong to only contingently. For the Meinongian these additional categories are *existence* and *subsistence*. For the possibilist, these categories are *actual existence* and *nonactual, possible existence*.

However, just because both theories have an identical structure, does not mean (1) that both theories have identical ontological and ideological commitments or (2) that there is no reason to prefer one theory to the other. The truth of (1) ought to be obvious from previous discussion. One might hold (2) for a variety of reasons: for example, the

Meinongian might hold that her theory is preferable to the possibilist's because the *subsisting* objects play many more metaphysical roles than the *mere possibilia*. That is, the Meinongian might argue that her theory is preferable because it provides a means through which we can understand, say, the subject matter of mathematics and the nature of 'abstract' objects, whereas the possibilist's *mere possibilia* may serve as modal truthmakers and not much more.

However, this is not the place to offer a full-throated defense of either Meinongianism or possibilism. In fact, the opposite is true: for the remainder of this paper, I will be arguing that we *can*, after all, dispense with the ontology and ideology of Meinongianism and possibilism while giving a semantics for SQML. For the remainder of this essay, I will be arguing that the presence of the common structure mentioned above is a strong mark against a metaphysical theory of modality. But enough of getting clear on the theories that I deny: let's move into more positive territory.

4. ACTUALISM AND THE SEMANTICS OF SQML

As I mentioned before, this essay will provide an actualist semantics for SQML. This has proven to be a difficult task; after all, many actualists are eager to eschew SQML as their modal logic of choice because the validity of **BS** and **NE** purportedly conflicts with actualist intuitions. So, before I begin my defense of an actualist semantics of SQML, I will explicate the thesis of actualism and throw into sharp relief the tension between this thesis and the apparent metaphysical commitments of SQML. Then, I will explicate previous unsuccessful attempts by actualists to give said semantics.

We can define actualism simply as the denial of possibilism:

Actualism: Everything that exists actually exists.

Now, I could continue on with the remainder of this project with this definition of actualism, but I won't: as I explained in the previous section, possibilism and Meinongianism share a common theoretical structure, and I believe actualism is more clearly understood as a denial of this common structure. So, I don't believe that this definition of actualism is an adequate denial of this structure: Given this version of actualism, a Meinongian could easily be an actualist: after all, Meinong, who held that being and existence are not univocal, also seems to have held that existence and actuality are univocal (78-81). I do not believe that defining actualism in this way is appropriate. In this paper, I want to defend a form of actualism that denies *both* Meinongianism and possibilism and completely rejects the common structure of these two theories. So, I will be operating under the following definition of actualism:

Actualism: Everything that is exists and everything that exists actually exists.¹²

This definition of actualism excludes both subsisting objects and mere possibilia, exclusions characteristic of actualism. Additionally, this definition more adequately states the actualist denial of the Meinongian and possibilist theoretical structure:

Actualists, given this definition of actualism, believe that there is but one fundamental ontological category. I previously discussed the intuitive linkage between the concepts existence, being, and actuality. Both possibilists and Meinongians claim that the linkage separating these concepts must be broken in order to give an adequate metaphysical theory of modality. And, both claim that an adequate semantics of SQML can only be provided under their metaphysical theories. Actualists, by contrast, believe that the ontological and ideological commitments of these theories are counterintuitive and (more importantly) unnecessary for an adequate semantics for modal discourse. The primary goal of this thesis is to defend a form of actualism as providing an adequate semantics for modal discourse that is consistent with the controversial theorems of SQML. However, it has been argued, the tenets of actualism are incompatible with the valid formulas of SQML. Let's see why an actualist would hold that view.

Actualists traditionally take the **Essentialist Intuition** very seriously: most actualists believe that there exists some property that though possibly exemplified is not possibly exemplified by any actually existing thing. Our previous example of such a

¹² This is roughly the definition given by Menzel, Adams, and Williamson, who hold that actualism is the thesis that everything is actual.

property was the property of being a child of the Pope: Actualists generally agree that (i) it is possible that such a property be exemplified, though they do not believe that any actual thing could have been, for example, a child of the Pope and (ii) that the only means by which one could maintain **EI** and SQML — with its controversial theorems **BS** and **NE** — would be to adopt a possibilist or Meinongian semantics for SQML. So, they typically reject SQML.

Note, however, that the denial of **BS** is not entailed by the bare thesis of actualism: rather, the thesis simply entails that, even if it is possible that the Pope have a child, there exists no subsisting nor merely possible object that could have been that child. **EI**, an additional intuition that actualists often have, suggests that no actual object could serve as a substitute for merely possible and subsisting objects. Without a substitute for these counterintuitive objects, the truth of the consequent of **BS** is difficult to justify. I believe it that many actualists abandon SQML because they take **EI** so seriously, though it is not directly entailed by their primary thesis. As I will argue and others have argued, denying **EI** is crucial to understanding the validity of **BS**. More on that point later. For now, it is important to note that as a matter of historical fact, many actualists have rejected SQML for the reasons outline above.

The denial of **NE** is also not entailed by the bare thesis of actualism. However, actualists also take the intuitions behind **Aliens** and **Absentees** very seriously: many actualists have the intuition that the actual world could have had more, fewer, or different fundamental stuff than it actually has. However, **NE** entails that everything that actually exists necessarily exists. And so, actualists have often held that the only means

by which one could consistently maintain **Aliens**, **Absentees**, and SQML is by adopting non-actualist theories.

However, nothing about the bare thesis of actualism entails **Aliens** and **Absentees**: actualism merely entails that no merely possible or subsisting object can be posited to make those intuitions true. And, as with **EI**, some actualists have argued that the intuitions behind **Aliens** and **Absentees** can be interpreted within an actualist framework.

In the next subsection, I will be describing two actualist theories that either deny or reinterpret **EI**, **Aliens**, and **Absentees** in an effort to provide an actualist semantics for SQML. However, I will argue, neither of these theories is an improvement over Meinongianism or possibilism.

4.1 PROXY ACTUALISM

The two actualist theories I will consider in this section share a similar strategy, so I will use a single name for any theory that employs this similar strategy: proxy actualism.¹³ Proxy actualists have an interesting relationship with **EI**. On the one hand, proxy actualists hold that the concrete objects of the actual world are not sufficiently malleable to serve as modal truth makers. That is, proxy actualists are sympathetic to **EI** insofar as it relates to concrete objects. However, they ultimately attempt to provide a semantics for SQML by denying **EI**, insofar as they believe that there exist actual abstract objects that can serve as modal truthmakers for our modal claims about nonactual, possible individuals.

¹³ The name is originally from Bennett (“Proxy actualism”).

Proxy actualists employ the same general strategy for making sense of claims about nonactual, possible individuals: they posit at least one new class of entities (Bennett calls them “proxies”) to serve as substitutes for nonactual, possible objects and subsisting objects. Proxies are purported to be *actually existing* objects that play all of the modal roles of *merely possible* objects and *subsisting objects*.

There are two conceptually connected forms of proxy actualism. The first form was developed by Bernard Linsky and Edward Zalta, who posit so-called *contingent nonconcretia*. The second was developed by Alvin Plantinga, who posits individual essences. In this section, I will present both views and ultimately give reasons to reject them.

In their paper “A Defense of the Simplest Quantified Modal Logic,” Linsky and Zalta posit proxies dubbed the *contingently nonconcrete*. To get clear on what a contingently nonconcrete object is, let's make some distinctions.

First, let's distinguish between concrete and nonconcrete objects.¹⁴ According to the authors, concreteness is a primitive concept, so our understanding of the concept is limited to listing properties and examples of both concrete and nonconcrete objects. Linsky and Zalta write, “[nonconcrete objects] are nonphysical, non-spatiotemporal, lacking in shape, size, texture, etc.” Examples are traditional abstract objects like numbers, sets, universals, etc. Concrete objects, by contrast, are spatiotemporally located and causally efficacious. Examples are human bodies, lamps, planets, etc. (446).

¹⁴ This distinction might also be known as the concrete/abstract distinction.

We might have believed before reading Linsky and Zalta's work that all nonconcrete objects are necessarily so. For example, a pure set like, say, the empty set, is necessarily nonconcrete—in no possible world does there exist a concrete pure set. However, according to Linsky and Zalta, we ought to reconceptualize the rigidity of the concrete/nonconcrete distinction: they argue that not all nonconcrete objects are necessarily nonconcrete. The *contingently nonconcrete* are those individuals that are concrete in some possible world, but not in the actual world; and the *contingently concrete* are those objects that are concrete in the actual world but nonconcrete in nonactual, possible worlds.. Thus, for example, a possible child of the Pope is contingently nonconcrete on this view. You and I, however, are contingently concrete: we are actually concrete but, had things turned out a bit differently, we might have been nonconcrete. The domain of quantification, then, comprises the contingently nonconcrete, the contingently concrete, and the necessarily nonconcrete, all of which are actual entities. Talk about supposedly merely possible individuals like a possible child of the Pope is to be understood as talk about objects that are contingently non-concrete.

Linsky and Zalta acknowledge that their rejiggering of the concrete/nonconcrete distinction might flout our previous intuitions. However, they argue, such rejiggering is justified given the theoretical work it allows us to do: because they include the contingently nonconcrete in SQML's domain of quantification, Linsky and Zalta can justify the validity of **BS** and **NE**. Let's start with their justification of **BS**.

Linsky and Zalta justify the validity of **BS** by reinterpreting **EI**. The authors hold that the intuition actually underlying **EI** is that no *concrete* thing could have been a child

of the Pope. This intuition, along with the intuition that the abstract/concrete objects are necessarily so, they take to be the cause of actualist suspicions of **BS** (448-9). However, Linsky and Zalta's world is not restricted to concrete objects, so this suspicion is unfounded. They argue that there *does* exist something that is possibly a child of the Pope, namely a nonconcrete object that, in another possible world, is a concrete child of the Pope. Their nonconcrete objects allow the authors to maintain the validity of **BS** in SQML without being committed to the existence of *mere possibilia* or subsisting objects. The contingently nonconcrete are those actual objects that replace these strange objects. Now on to **NE**.

Of the validity of **NE**, Linsky and Zalta write:

NE is also acceptable. Though **NE** asserts that everything necessarily exists, there is no conflict with intuition given that the actualist quantifier has no spatiotemporal connotations. The important thing is that neither **NE** nor \Box **NE** assert that everything (or indeed anything) is necessarily concrete. The intuition that a particular concrete object x might not have existed is captured in our logic by the idea that x is not necessarily concrete.... What more could be meant by saying that it, qua concrete object, doesn't exist there? [...] This interpretation doesn't require that contingent concrete objects disappear from the logical scene just because they disappear from the physical scene at other worlds. (448-9)

So, Linsky and Zalta claim to be able to maintain the consistency of **Aliens**, **Absentees**, and **NE** by arguing that our ordinary intuitions about existence are restricted to those things that concretely exist. **Aliens** is interpreted as the claim that there could have been more concrete objects than there actually are and **Absentees** is interpreted as the claim that some of the concrete objects that are actually concrete could have been nonconcrete. And, an object's being nonconcrete, is purportedly what our intuitions about nonexistence are really mapping onto. This is admittedly a revisionist account of our intuitions, but, the authors argue, sometimes revisionist accounts are necessary for adequately understanding reality.

What do we make of Linsky and Zalta's contingently nonconcrete? After all, they seem to allow us to both give an actualist semantics for SQML and better understand our intuitions about modality in general. But is Linsky and Zalta's system *really* actualist? Let's consider some arguments that purport to show that Linsky and Zalta's system ought to be rejected because it is not actualist after all.

I believe that actualists worry that Linsky and Zalta's form of proxy actualism is not in fact actualist, because the basic structure of their theory mirrors the structure of possibilism and Meinongianism.¹⁵ Remember that possibilists and Meinongians believe that there is a fundamental ontological category, which contains objects that are necessarily members of that category and that there are at least two additional subcategories membership in which, for some members, is only contingent.. Note that

¹⁵ Many have made similar arguments related to this worry. See esp. Bennett ("Proxy actualism"), Menzel, Tomberlin. For replies to these objections see Zalta and Nelson. My own talk of "structural similarity" comes from Bennett ("Proxy Actualism").

Linsky and Zalta make a similar move in an effort to supplant *mere possibilia* with actual objects: they hold that the quantifiers in SQML range over actual objects, of which concrete objects and nonconcrete objects are subcategories. Where the Meinongian holds that these categories are existence and subsistence and the possibilist holds that these categories are actual and nonactual existence, Linsky and Zalta posit (actual) concreteness and (actual) nonconcreteness. If Linsky and Zalta held that all the members of these subcategories were members necessarily, then their theory would not mirror possibilism and Meinongianism. But they don't: Linsky and Zalta believe that membership in these categories is a contingent matter and it is this very contingency that allows them to provide a semantics for SQML. However, because Linsky and Zalta allow for contingent membership in these categories, they cannot claim to have an actualist metaphysics.

Luckily, Zalta and Nelson have had a chance to respond to the charge that their theory is not in fact actualist. They write:

The structural similarities noted above arise from the fact that anti-possibilist Meinongianism and [our theory] are two interpretations of a single formalism. But they are *inconsistent* interpretations of a single formalism and competing frameworks for the proper regimentation of ordinary modal intuitions. The advocate of [our theory] is an anti-Meinongian (and therefore denies anti-possibilist Meinongianism) and an anti-possibilist; everything, on her view, both exists and actually exists. The argument from analogy loses sight of

these facts and it is precisely because of these facts that [our theory] is a robust form of actualism whereas anti-possibilist Meinongianism is not. And because [our theory] is compatible with NE, BF... and the simplest QML more generally, Linsky and Zalta's original claim to have presented a version of actualism consistent with the simplest QML stands defended. (292)

Zalta and Nelson accept the fact that their theory shares a deep structural similarity with possibilism, but they deny that this entails that their theory is not actualist. However, Zalta and Nelson have not made a convincing case for this conclusion. My charge against Linsky and Zalta's system is that it is simply Meinongianism and/or possibilism relabeled in actualist terms: the authors have not established how their theory is free of the Meinongian/possibilist theoretical structure in spite of its similarity to those theories. If that is the case, then the system is not actualist.

Remember that Meinong and Linsky and Zalta divide their fundamental ontological category with certain primitive, irreducible concepts: for the Meinongian those concepts are 'existence' and 'subsistence' and for Linsky and Zalta 'concreteness' and 'nonconcreteness.' Because 'concreteness' is a primitive concept and 'nonconcreteness' is defined in terms of that concept, both concepts can only be illuminated by ostension and by describing properties of those objects that fall under these concepts. Unfortunately, when we list these properties, it seems as if we are describing the same kinds of objects. For example, both subsisting objects and merely possible objects, like nonconcrete objects, are not spatiotemporally-located, are not

causally efficacious. Concrete objects, like Meinong's existing objects and the possibilist's actual objects, are causally efficacious, and have among their members only objects that are in principle empirically discoverable. Furthermore, some members of these categories are necessarily so—in some worlds, an actually nonconcrete object is concrete and in some worlds, a subsisting object exists—while all members of both categories belong to a more fundamental ontological category.

I could go on with the similarities, but that would be unnecessary: it seems as if Linsky and Zalta have simply papered over the Meinongian/possibilist division of being with more contemporary (and actualist-friendly) terms. Until the authors can provide us with an attribute that, say, a nonconcrete object lacks but a subsisting object has, we have no reason to believe that their primitive concepts are not different names for the same things. Until then, we can safely conclude that Linsky and Zalta's system is not an actualist one. Luckily, Linsky and Zalta's form of proxy Actualism is not the only form, let's see if Plantinga's fares any better.

Where Linsky and Zalta posit the contingently nonconcrete, Plantinga posits individual essences or haecceities. Semantically, Plantinga's individual essences function similarly to the contingently nonconcrete. According to Plantinga, an individual essence is:

... a property *E* which is exemplified in some possible world and is such that, in every possible world, for every *x*, if *x* has *E* then: (a) *x* has *E* essentially and (b) in no world does anything distinct from *x* have *E*. (Jager, 337)

Properties, according to Plantinga, exemplified or not, exist in every possible world. Thus, individual essences exist in every possible world. However, *which essences are exemplified* varies across worlds. For example, according to Plantinga, the Pope could have had a child, if (1) there is an individual essence that is not exemplified and (2) in some world that essence is exemplified. With this view, Plantinga can maintain a single, fixed domain of quantification over actual individuals since his domain contains individual essences instead of *mere possibilia*.¹⁶ Plantinga can also give a consistent way to understand *de re* claims about possible individuals—they are claims about possible exemplifications of actually existing individual essences.

Plantinga's theory has the distinct advantage of avoiding the structure of possibilism and Meinongianism: Plantinga posits one fundamental ontological category (actual existence) that is subdivided into two classes of individuals: properties and non-property-property-bearers (NPPBs).¹⁷ However, Plantinga eschews the suspect possibilist/Meinongian structure by leaving these categories modally rigid—no NPPB

¹⁶ Let me stress the 'can' in the previous sentence. Note that Plantinga and Jager, as a matter of fact, preferred Kripke's variable domain modal logic (VDQML, see section 2). Jager's work gives a semantics for a variable-domain quantified modal logic that makes use of Plantinga's individual essences as actualist substitutes for merely possible objects. Having noted that, Plantinga and Jager's semantics can be easily adapted for a fixed-domain modal logic like SQML--one simply has to remove the variable domains in Kripke models and allow for unrestricted quantification over the superdomain.

¹⁷ Plantinga does not commit himself to what these NPPBs might be. We might think of them as concrete objects, bare particulars, regions of spacetime, etc. The only sufficient conditions for *x* being a NPPB is that (1) *x* possibly exemplifies a property and (2) *x* is not itself possibly exemplified. (2) must be included as a sufficient condition because properties themselves can exemplify properties. I will refer to objects like *x* as NPPBs for the remainder of this section.

could have been a property and no property could have been an NPPB. So, we would not be justified in accusing Plantinga of possibilism or Meinongianism.

Plantinga's individual essences are also useful in justifying the validity of **BS** in light of **EI**. **EI** is true, under Plantinga's theory, if there is some property θ that this possibly co-exemplified with an individual essence, though not with any individual essence that is *actually exemplified*. An example of such a property is the property of the being the Pope's child: no actually exemplified individual essence could have been co-exemplified with this property (in layman's terms: no actual individual could have been a child of the Pope). However, this does not entail that the individual essence in question is (1) not possibly exemplified nor (2) not possibly exemplified along with any other property. So, Plantinga is able to affirm the truth of both the antecedent and consequent of **BS** along with the truth of **EI**.

While Plantinga has a clear way of justifying the validity of **BS**, it's not so clear that he can justify the validity of **NE**. Of course, because Plantinga's properties are necessary existents, it is *prima facie* plausible that Plantinga's system might avoid any tension with **NE**. However, it is important to note that while properties (and thus individual essences) necessarily exist on Plantinga's view, properties are not the only members of Plantinga's fundamental ontological category. Plantinga must also posit objects that possibly exemplify his individual essences: NPPBs. If we use Plantinga's system as a semantics for SQML, then we will be committed to the necessary existence of not only properties, but also the bearers of those properties because **NE** requires the existence of every member of the domain in every possible world. Because the domain

includes both essences and things that exemplify essences (NPPBs), objects in both categories must necessarily exist.¹⁸ That fact has been hard for some to swallow for other semantics, so I imagine the same worries will arise for Plantinga's system.¹⁹ However, I will argue later that worries about the necessary existence of objects like NPPBs are a result of a misunderstanding of the nature of modality. So, in an effort to avoid undermining my own semantics before I explicate them, I will let the worries surrounding **NE** pass, with the promise that I will take issue with them in Section 5.

However, while Plantinga seems to have a plausible account of the validity of **BS** and **NE**, we have good reason to reject his theory independent of concerns about how it fits with SQML. Actualists also object to Plantinga's form of proxy actualism because it's not clearly a theoretical improvement over possibilism. Remember that Plantinga supplants *mere possibilia* with individual essences. An individual essence, however, is a strange type of property: it is a property that is both "logically simple" and not exemplifiable by multiple objects. A property is logically simple if "it is not itself a negation, conjunction, disjunction, quantification, modalization, etc. of any other properties or relations" (Menzel). Now, there seems to be a tight intuitive connection between a property's logical simplicity and its possible multiple-exemplification. For

¹⁸ This is only true *if* we use Plantinga's theory for interpreting SQML. This result can be said to be primarily a feature of SQML and not of Plantinga's theory. Plantinga himself is not committed to the necessary existence of property-bearers. It can be understood as an unfortunate result of interpreting SQML with his semantics that these property-bearers necessarily exist.

¹⁹ Plantinga might respond that my criticisms are unfounded because he has not in fact committed himself to the existence of NPPBs. That is, Plantinga might argue that his entire fundamental ontology is exhausted by properties, which are purported to necessarily exist, so that the validity of **NE** is no cause to worry. If that were the case, Plantinga would be committed to the view that existing things are bundles of properties.

example, squareness is a property that is both logically simple and exemplified by many different particulars. Plantinga's essences are an oddity, according to Menzel, because they are both logically simple and not exemplifiable by many different particulars. I assume that most metaphysicians have the intuition that properties are necessarily exemplifiable by multiple objects, as properties are often posited to explain what different particulars have in common. However, as Menzel writes, "Plantinga flouts these intuitions in order to introduce an entirely new class of simple property whose sole function is to serve as an actualist counterpart to *possibilia*. Sacrificing such a crucial intuition for understanding properties for the sake of supplanting merely possible objects with actual objects is at least as unattractive as positing *mere possibilia*, especially if the motivation for doing so is providing a semantics for SQML.

So, where do we stand with proxy actualism? I have argued that Linsky and Zalta's form of actualism is simply Meinongianism papered over with actualist terminology and that Plantinga's form of actualism is not clearly preferable to possibilism and Meinongianism, because Plantinga posits objects equally as strange as *mere possibilia* and subsisting objects. In short, if actualists decide to posit the existence of strange metaphysical objects (proxies) in order to (1) avoid commitment to the existence of *mere possibilia* while (2) maintaining that SQML is amenable to actualism, it's not clear that actualists shouldn't simply accept that SQML is not a viable means of formalizing statements of modality. So, I will conclude that the proxy actualist's strategy of positing strange, albeit actual, objects in place of merely possible objects is not an

attractive move. In the next section, however, I argue that we can make sense of the validity of the controversial schemas of SQML *without* positing such strange objects.

5. COMBINATORIALISM

The theories addressed in the previous section are centered around the idea that the actual world contains objects useful for making sense of **BS** and **NE**. However, as we have seen, the strange objects that the proxy actualists posit in order to justify the validity of **BS** and **NE** give us cause to reject those theories. The theory advanced in this section, like proxy actualism, denies **EI** but refuses to posit any additional metaphysical objects to play the modal roles of *mere possibilia* and subsisting objects.

Combinatorialism is centered on the idea that actually existing objects are sufficiently modally malleable to serve as truthmakers for our modal claims. Before I turn to a more thorough account of combinatorialism, I want to provide the reader with the combinatorialist's intuitive picture of modality. Consider William Lycan's short explanation of the general intuition behind combinatorialism:

Suppose that there are some *metaphysically basic elements* out of which our universe is composed. Call them "atoms" (in the metaphysical rather than the chemical sense). Our world, we may say, consists of these atoms' being *arranged* in a certain fabulously complex way. [...] Now let us construe "other possible worlds" as *alternative* arrangements of our atoms which mirror the ways our world might have been just as the actual arrangement mirrors the world as it is. (304-5)

I mention this intuitive picture only to give the reader a general sense of the theories that will be discussed in this section: the theories I discuss are much more complex and much more suitable to our purposes than the simple intuitive picture just discussed. However, all combinatorialist theories share the intuition that the atoms of the actual world could have entered into different complex relationships with one another to form radically different possible worlds. In the next two subsections, I will be explicating and evaluating two distinct theories of combinatorialism that are united by this intuitive picture. I start with David M. Armstrong's theory, which he advances in great detail in *A Combinatorial Theory of Possibility*.

5.1 A COMBINATORIAL THEORY OF POSSIBILITY

Before I can give a full account of Armstrong's combinatorial theory, I will need to make some preliminary remarks about his ontology, as it is fundamentally different from the ontologies previously discussed. With the exception of Plantinga's proxy actualism, the previous ontologies we have discussed have included at least two categories of being. For example, the Meinongian carves being into the categories of subsisting and existing objects just as Linsky and Zalta carve being into the contingently concrete and contingently nonconcrete. We have seen that, in some cases, the division of being into two categories can make a modal theory appear to be Meinongian. So, one natural response is to refuse to divide being into two categories, to argue that there is but one category of being. David Armstrong's theory contains a so-called "one-category" ontology.

According to Armstrong, all that fundamentally exists are actually existing states of affairs (Armstrong 43). In order to clarify what a state-of-affairs is, it is necessary to briefly return to our ordinary way of thinking of atoms and universals, with the promise that atoms and universals are *not* the fundamental constituents of Armstrong's ontology.

We might divide our ontology into two categories of things: atoms and universals, where atoms are individuals that "have no individuals as proper parts" and where universals are "properties that "can be possessed by more than one ... individual" (38-39). Now, imagine that we predicate 'F' of the atom *a*. We might think that what makes the statement 'Fa' true is the existence of both the universal *F* and the atom *a*. However, as Armstrong notes, "The existence of *a* and the property *F* by no means ensures that *a* is *F*. If we are ontologically serious, we shall require a truth-maker to correspond to this truth: the state of affairs of *a*'s being *F*" (Armstrong 41).²⁰ That is, the mere existence of *a* and *F* does not guarantee that *a* is related to *F* in any particular way and thus the mere existence of these two individuals does not guarantee the truth of 'Fa'. Armstrong holds that what makes 'Fa' true is that the state of affairs of *a*'s *being F* exists.

Now, the way I've just explicated Armstrong's argument for the existence of states of affairs seems to rely on the existence of atoms and universals and thus it seems that I've broken my promise to rid Armstrong's ontology of everything but states of affairs. That is, it seems that Armstrong is committed to the view that *a* (fundamentally) exists and *F* (fundamentally) exists and, when the two are united under some relation,

²⁰ Italics on *F* are mine.

a's *being F* (fundamentally) exists *in addition to a* and *F*. This is not Armstrong's view (43). Armstrong writes,

We make think of an individual, such as *a*, as no more than an *abstraction* from all those states of affairs in which *a* figures, [and] *F* as an abstraction from all those states of affairs in which *F* figures [...]. By 'abstraction' is not meant that *a* [and] *F*... are in any way other-worldly, still less 'mental' or unreal. What is meant that, whereas by an act of selective attention they may be *considered* apart from the states of affairs in which they figure, they have no existence outside states of affairs.

So, according to Armstrong, the world consists entirely of states of affairs, which have atoms and universals as constituents. However, these constituents do not *fundamentally* exist like states of affairs do, they are the products of our selective attending to states of affairs: the distinction between atoms, universals, and states of affairs is a mere distinction of reason, rather than a distinction of fact.²¹

Armstrong recognizes that this argument might not be convincing to some, but this is not the place to give a full-throated defense of a state-of-affairs-based ontology (43-44). So, for the remainder of this section I will be assuming that Armstrong's single-

²¹ Note, however, that this 'distinction of reason' is the *only* means by which we individuate, or give identity conditions for states of affairs. For example, the state of affairs *a*'s *being G* is distinct from *a*'s *being F* because the former has *G* as a constituent and the latter has *F* as a constituent. The same works *mutatis mutandis* for cases where the atoms differ.

category ontology is a legitimate ontology that can provide us with a systematic metaphysical picture. On to Armstrong's theory of modality.

In order to explain Armstrong's combinatorialism, I will need to make some further distinctions. The first is between an atomic state of affairs and a molecular state of affairs. An atomic state of affairs is a state of affairs understood through a "distinction of reason" as being consisting of one atom and one universal: *a's being F* is an example (41). A molecular state of affairs is a conjunction of atomic states of affairs, where that conjunction contains no "negative or disjunctive states of affairs"(45). So, per our previous example, *a's being F and b's being G* is a molecular state of affairs, while neither *a's being F and a's being not-G* nor *a's being either F or G* are molecular states of affairs.

Armstrong identifies possible worlds with molecular states of affairs, where the actual world is a possible world identical to the molecular state of affairs that results from conjoining all the existing atomic states of affairs (45). Nonactual, possible worlds are constructed by selectively attending to the constituents of the actually existing states of affairs and 'recombining' them into nonexistent, merely possible states of affairs. I'll explain.

Imagine a world w_1 containing only four objects: two atoms, *a* and *b*, and two universals, *F* and *G*.²² In this world, let *a* exemplify *F* and *b* exemplify *G*. Let 'a', 'b',

²² This example is borrowed from Armstrong (58), but is adjusted for simplicity. Imagine scare quotes throughout, as Armstrong is not committed to the existence of anything apart from states of affairs. Recombination, however, is best explained by entertaining the existence of universals and atoms.

‘F’, and ‘G’ denote a , b , F , and G , respectively. As a matter of fact, the statements ‘Fa’ and ‘Ga’ are true at w_1 because a exemplifies F and b exemplifies G . However, because they are atoms, a could have exemplified G and b could have exemplified F . We might call the world, w_2 , containing a , b , F , and G where a exemplifies F and b exemplifies G a possible world that is a *recombination* of the elements of w_1 . The main intuition behind combinatorialism is that our world, unlike w_1 is a massively complex combination of atoms and universals that, like w_1 could have been “recombined” to form other massively complex possible worlds, like w_2 . The same procedure holds for the construction of massively complex possible worlds.

Strictly speaking, Armstrong believes that the only states of affairs that (in any sense) exist are actually existing states of affairs: the molecular state of affairs identical to the actual world is a conjunction of all and only existing atomic states of affairs. This fact makes Armstrong’s notion of a *possible* state of affairs a bit difficult to explain, so I will leave it up to Armstrong. He writes:

The notion of a possible state of affairs is introduced semantically, by means of the notion of an atomic *statement*. Let a be a simple individual, and F and G two simple properties. Let a be F but not G . Now consider the statements ‘a is F’ and ‘a is G.’ The former is true, and may be called an atomic statement. But the latter may *also* be called an atomic statement. While failing to correspond to an atomic state of affairs, it corresponds to the *form* of an atomic state of affairs: ‘a’ picks out an actual atomic individual, ‘G’ falsely predicates a

genuine simple property of this individual....‘a is G’ is a false atomic statement. What it states, that *a* is *G* is false. But we can also say that *a*’s being *G* is a possible (merely possible) atomic state of affairs (45-6).

This passage from Armstrong seems to suggest that he countenances the existence of merely possible states of affairs, which suggests that Armstrong’s theory is not actualist after all! However, Armstrong does not posit merely possible states of affairs, so how can he make sense of the possibility of *a*’s *being G*? By denying that the statement ‘a is G,’ along with every false predication of a universal to an atom, refers to an *existing* state of affairs. Armstrong writes,

It would not even be right to say that we can *refer* to [a merely possible state of affairs], at any rate if reference is taken to be a relation. Perhaps it is best to speak of *ostensible* reference. The parallel is with the ostensible (but very useful) reference that we make to ideal gasses, frictionless planes and so forth, in scientific investigations (46).

So, Armstrong believes that nonexistent, merely possible atomic and molecular states of affairs can be treated as fictional objects that are ostensibly referred to, but which fail to exist.²³ Again, we might provide arguments that conclude that Armstrong is

²³ Armstrong seems to realize the awkwardness of the so-called ‘Fictionalist’ element described here. He acknowledges that previous writers have argued that merely possible states of affairs might be substituted for by sets or mereological sums of atoms and universals that fail to constitute existing states of affairs. However, Armstrong rightly acknowledges that this move

in fact committed to the existence of merely possible states of affairs as well as the existence of universals and atoms *in addition to* the actually existing states of affairs. However, my project includes neither a defense of nor an attack on Armstrong's position.²⁴ Indeed, I will now argue that despite these worries about this theory, it is not a theory sufficient for providing a semantics for SQLML.

Armstrong's modal metaphysics does not provide a suitable semantics for SQLML because it cannot be reconciled with the validity of **BS**. Recall that **BS** requires that if a state of affairs possibly exists, then there must exist something that is possibly that state of affairs. There are two major issues with the validity of **BS** if we use Armstrong's modal metaphysics as the semantics of SQLML, both of which deserve discussion.

First, Armstrong's merely possible states of affairs must be constructed by recombinations of the constituents of actually existing states of affairs. However, there seem to be possible states of affairs that are not constructed from any of the constituents of the actual states of affairs. So, imagine the state of affairs *a's being a child of the Pope*, where the Pope actually fails to have a child. Unfortunately for Armstrong, it is true *ex hypothesi* that no actually existing state has as one of its constituents the property of *being a child of the Pope*. Because it is impossible to recombine the constituents of

seems *ad hoc*. In addition, such a move would commit one to the existence of atoms, universals, sets, and states of affairs, thus leaving one without a slim, one-category ontology (46).

²⁴ See Lewis for a critical review of Armstrong's theory.

states of affairs that don't in fact exist, Armstrong cannot admit the possibility that there could have existed a child of the Pope.²⁵

Second, even in cases where the antecedent of **BS** is true (i.e., the cases where the constituents up for recombination actually exist), Armstrong has no obvious way of justifying the truth of the consequent of **BS**. For a simple explanation, let's return to our simple world, w_1 , which contains the states of affairs *a's being F* and *b's being G*. If we admit the possibility of the state of affairs *a's being G*, then we must admit that there exist something in w_1 that is possibly that state of affairs. However, there exists nothing in w_1 that could have been the state of affairs *a's being G*. Why not? Because states of affairs are individuated *solely* by their constituents: different constituents, different states of affairs. The only candidates for that which is possibly *a's being G* that exist in w_1 are *a's being F* and *b's being G*. But if we replace either *F* with *G* in the former case or *b* with *a* in the latter, then the state of affairs under consideration fails to be identical with the state of affairs before the substitution and we cease to have the result we originally wanted: something that could have been *a's being G*.

To see why this result is absurd, consider the following case: let's say that it's possible that Barack Obama could have been born in Kenya. What we generally have in mind is a case where the 'Barack Obama' under counterfactual consideration is identical with the Barack Obama that happens to have been born in Hawaii. However, given the Armstrongian semantics for **BS**, we are able to make no such claim. Given his semantics,

²⁵ See Ch. 4 of Armstrong where he recognizes the tension his theory has with so-called 'alien' universals for a worry similar to this one.

we would have to say something like, “Barack Obama could have been Kenyan, if he had not been Barack Obama,” which is absurd.

So, I conclude that Armstrong’s combinatorialism unmodified cannot serve as an adequate semantics for SQML because his ontology does not allow us to admit the possibilities required for the validity of **BS**. All is not lost for combinatorialist semantics for SQML: I will argue in the next subsection that there is an alternative form of combinatorialism that can provide a reasonable semantics for SQML, without the drawbacks of Armstrong’s theory.

5.2 M-COMBINATORIALISM

Up until now, I have been carefully considering the viability of previous theories of modality as providers for a reasonable semantics of SQML. Though I have given reasons to reject each theory, I do not believe that an actualist semantics of SQML is impossible to develop. In this subsection, I develop my own semantics for SQML that is heavily reliant on the intuitions discussed at the beginning of my section on combinatorialism. The theory I advance here will be a version of combinatorialism that dispenses with Armstrong’s states of affairs in favor of a three-category ontology. I call my theory Mereological combinatorialism, or M-Combinatorialism for short.

Before I turn to a more careful explication of M-Combinatorialism, I want to develop the M-Combinatorialist’s intuitive picture of modality, as I did with the combinatorialist’s general intuitive picture at the beginning of this section. According to M-Combinatorialists, the world is, at bottom, comprised of fundamental entities, which

I'll call simples.²⁶ These simples are arranged into fabulously complex relations with each other, where the nature of the arrangement of simples determines which properties the mereological sum of those simples exemplifies.²⁷ The intuition behind M-Combinatorialism is this: had the universe had a slightly different history, the sums that actually exemplify certain properties could have exemplified different properties because their constitutive simples could have been arranged in many different ways.

For example, return to the Pope's possible child. Presumably, any such child would have been a sum of myriad simples exemplifying the property of being a child of the Pope. On actualist versions of M-Combinatorialism, the sum that could have exemplified the property of being the Pope's child must actually exist. So, statements ostensibly about the Pope's possible child are statements in fact about actual sums of simples that could have jointly exemplified the property in question. More generally, when we make modal claims ostensibly about nonactual possible individuals, we are making claims about what properties actual sums could have exemplified and what relations simples and sums could have entered into. For the remainder of this subsection, I'll refine this actualist form of the M-Combinatorialist's theory of modality.

The M-Combinatorialist has a three-category ontology: she posits simples, mereological sums, and universals. Each category deserves its own discussion, as the

²⁶Armstrong uses the term 'atoms,' where atoms are "first-order particulars that have no proper parts." Because recent literature on mereology has adopted the term 'simple' to avoid confusing 'atoms' with the atoms of chemistry, I will use 'simple.'

²⁷ The idea that simples enter into complex relations such that their sums exemplify different properties originates from van Inwagen.

answer to many purported objections to M-Combinatorialism, discussed in the next section, rely on the subtleties of the theory. I'll start with the notion of a 'simple'.

We can define simples in strictly mereological terms, with 'part' left as a primitive notion:

x is a proper part of $y =_{df}$ x is a part of y but y is not a part of x .

x is a mereological simple $=_{df}$ x has no proper parts (Markosian, 2).

For the remainder of this essay, I won't have much more to say about simples, but it is worth noting that I am committed to a very thin notion of simples: many partless objects might be simples and the kind of simples that exist is an *a posteriori* question that is outside the scope of this project.

So, given this conception, the class of simples could be homogeneous. That is, I leave open the possibility that, at bottom, the world only consists of one kind of simples. However, Markosian's conditions for a thing's being a simple leave open the possibility that there may be several different types of simples. Simples might be, for instance, the fundamental particles of quantum physics, if those particles turn out to be heterogeneous. This conception of 'simple-hood' is not a solely physical conception: I leave open the possibility that the world might ultimately be composed of nonphysical simples: this conception is open to the possibility that simples are objects like tropes, monads, universals, etc. Finally, my definition is consistent with McDaniel's view that there is "no correct, finitely statable, and non-circular" way to define simples, that 'simple-hood' is a brute concept (234). On to the next concept: mereological sums.

The next concept to clarify is the concept of a mereological sum:

x overlaps y =_{df} there is a z such that z is a part of x and z is a part of y .
 y is a mereological sum of the x s =_{df} every one of the x s is a part of y
and every part of y overlaps at least one of the x s (Markosian, 1).

Now, there is a popular debate in mereology about what necessary and sufficient conditions must be in place for any given simples to compose a further a mereological sum.²⁸ Mereological Nihilists hold that simples *never* compose mereological sums, Mereological Universalists hold that simples *always* compose mereological sums, and those who wish to restrict composition give conditions under which simples compose mereological sums. M-Combinatorialism includes sums in its fundamental ontology, so it is incompatible with Mereological Nihilism. That leaves the M-Combinatorialist with two options—either simples always compose mereological sums or simples compose mereological sums given restricted conditions. I will argue that the M-Combinatorialist cannot accept the latter view, because it would commit her to the existence of merely possible mereological sums.

Assume that there is some set of restrictions on composition. Because the mereological moderate is not a universalist (i.e., she hopes to *restrict* composition), she will hold that those conditions are not met by some actually existing simples. Those simples actually fail to compose a mereological sum. However, we can imagine a world in which those conditions are met and those simples form a further object. That is, there exists a sum of simples in that possible world that fails to exist in the actual world. That sum, then, is a merely possible sum. However, Actualism denies that there exist

²⁸ Cf. van Inwagen (1995), Sider (MS), Markosian (1998).

nonactual, possible entities of any kind. So, there can be no restrictions on composition. Mereological Universalism is entailed by any actualist form of combinatorialism.²⁹ On to the third category of the M-Combinatorialist's ontology: universals.

I will use Armstrong's conception of universals (39). Consider the following definition of universals, extracted from Armstrong's work:

F is a universal =_{df} F is a property that is possibly exemplified by multiple particulars.

Think of universals as those existents that give sums and simples their shareable characteristics. Universals are related to sums and simples through a primitive exemplification relation, such that if a sum or simple exemplifies a universal, then that sum or simple is characterized by that universal. So, if a sum exemplifies, say, redness, then we can truthfully say of that sum that it is red, as the sum takes on a red character from the universal. Universals are possibly exemplified by multiple individuals: the M-Combinatorialist's ontology dispenses with Plantinga's strange individual essences in favor of properties that are multiply-exemplifiable, a notion that was supported in a previous section.

The M-Combinatorialist also posits the existence of unexemplified properties, but not unexemplifiable properties. Remember that a limiting feature of Armstrong's theory was his restriction of universals to those that happen to be constituents of actual states of affairs. In an effort to avoid the problems that come with such a limit on

²⁹ That might be a tough entailment for some to swallow, so see van Cleve and Sider's *Four-dimensionalism* (120-32) for defenses of Mereological Universalism.

universals, I countenance the existence of unexemplified universals. For example, the universal *being a child of the Pope* is an unexemplified universal that could have been exemplified. The advantage of positing such universals is that they provide the M-Combinatorialist with a greater stock of objects that are up for recombination. However, there is no need to countenance the existence of unexemplifiable universals like *round-squareness*. Such universals are by their very nature unable to character any sums or simples, so are an unnecessary addition to the M-Combinatorialist's ontology.

It is also important to note that, given certain conditions, a sum might exemplify different properties. According to M-Combinatorialism, a sum exemplifies properties based on how its constitutive simples are arranged—where they are located with respect to one another in space-time, which sorts of (physical) bonds they enter into with one another, etc. (van Inwagen, 127). I do not take the notion of an 'arrangement' to be primitive: 'arrangement' is a term used to broadly denote the sorts of complex relationships that simples can enter into with one another. I take the nature of the different arrangements of simples to be an *a posteriori* matter relegated to the sciences, or, if simples are nonphysical substances, an *a priori* matter relegated to future metaphysicians.

According to the M-Combinatorialist, all that exists are the simples, sums, and universals that exist in the actual world: there exist no subsisting simples, no merely possible sums, etc.. In fact, it is a key feature of M-Combinatorialism that the materials of the actual world are modally malleable enough to act as modal truthmakers for a wide

variety of cases. It is with these materials that the M-Combinatorialist is able to make sense of the validity of **BS** and to provide a semantics for SQML.

Consider our earlier instance of **BS**, $\exists x \diamond Fx \rightarrow \exists x \diamond Fx$, where 'F' stands for 'is a child of the Pope.' The worry is that there doesn't seem to be an actual object that could have been a child of the Pope. The M-Combinatorialist responds that there is such an object: there is a mereological sum of the simples that could have been arranged to form a child of the Pope--a mereological sum that could have exemplified all of the properties necessary to deem it a child of the Pope. After all, we know that the child would have originated from some sperm and some egg, both of which presumably actually exist at some time, both of which are sums of actual simples, though (as a matter of fact) the sperm in question never fertilized the egg in question. Furthermore, it's not as if the simples that would have composed the Pope's child never existed because those gametes never came into contact: if the child had existed, she would have been composed of simples just like her mother and father. Those simples and that sum exist whether or not they exemplify the property of being a child of the Pope. The M-Combinatorialist, who must hold mereological universalism, simply acknowledges the existence of the sum of the simples that composed that sperm and egg along with the sum of the simples that would have formed the body of the Pope's child, at each stage of that child's life. So, there actually is something, namely a mereological sum, that could have been a child of the Pope.

The M-Combinatorialist has a general procedure for interpreting claims about nonactual, possible individuals. According to M-Combinatorialism, for any nonactual,

possible object, that object must have been composed of simples. Given actualism, that object must be constructed out of actually existing simples. Because M-Combinatorialism entails mereological universalism, there does exist a sum of those simples, even if that sum fail to exemplify any of the properties of the nonactual, possible object under consideration. Because the simples that compose these sums could have been arranged otherwise, actually existing sums could have exemplified a massive range of different properties. These actual sums supplant any supposedly merely possible or subsisting object.

The primary advantage of M-Combinatorialism over the theories previously discussed is that it helps us make sense of modality without extraordinary metaphysical commitments. Insofar as we require mereological sums, simples, and universals for other purposes, the M-Combinatorialist argues, we can use them for our modal truthmakers. Every other theory (with the exception of Armstrong's) discussed so far has required us to posit a new range of entities and to include in our ideologies new primitive concepts: insofar as M-Combinatorialism dispenses with these strange commitments, while (purportedly) retaining their expressiveness, we ought to prefer M-Combinatorialism.

Of course, previous forms of combinatorialism have faced serious objections, which can be used to challenge the expressiveness of M-Combinatorialism. In an effort to make my defense of M-Combinatorialism as strong as possible, I will levy those objections against my own theory and show how the M-Combinatorialist can allay its opponents' concerns.

5.3 NECESSARY EXISTENCE AND WORLD-RELATIVE MODALITY

In the previous subsection, I argued that the M-Combinatorialist can make sense of the validity of **BS**, though I neglected to argue how she can make sense of the validity of **NE**. Unlike the defense of the validity of **BS**, which is fairly obvious given the combinatorialist's ontology, the defense of the validity of **NE** requires much more philosophical legwork.³⁰

M-Combinatorialism holds that the actually existing sums, simples, and universals *necessarily* exist, a position consistent with the validity of **NE**. However, there seems to be a conflict with **Aliens** and **Absentees**, due to this feature of the theory. Remember that **Aliens** is the intuition that there could have been more individuals than there actually are and **Absentees** is the intuition that some existing individual could have failed to exist. On one notion of an 'individual,' M-Combinatorialism and SQML are not committed to the necessary existence of individuals. Let me explain.

We might conceive of individuals as ordinary, complex objects. Examples of those individuals would be persons, planets, toasters, etc. Pick any ordinary object you like. According to combinatorialism, it is true that both the mereological sum of the simples that compose that complex object and the simples themselves exist in every possible world. However, it is not necessary that a mereological sum take the form of a complex object or a natural kind—given mereological universalism, the same sum that exemplifies the properties of a toaster in the actual world could exemplify radically different properties in another possible world. So, there is a straightforward sense in

³⁰ See Ch.4 of Armstrong for the same worry applied to Armstrong's system.

which there could have been more, fewer, or different individuals than there actually are, given this conception of individuals. A world with more individuals, on this interpretation, is a world where more mereological sums exemplify the properties necessary to appear as toasters, planets, persons, etc. A world with fewer individuals, on this interpretation, is a world in which fewer mereological sums meet these requirements. And, a world with different individuals is simply a world where the mereological sums that appear as toasters and planets in this world exemplify radically different properties. I take it that most of our intuitions about there being more, fewer, or different individuals than there actually are can be captured by combinatorialism in this manner.

Of course, some objectors will not be satisfied with this response: they worry about the necessary existence of simples, sums, and universals. After all, these are the individuals that are part of the M-Combinatorialist's fundamental ontology and it is these individuals that necessarily exist. This worry is well expressed by Lycan:

It would seem to be possible that the world should have contained either more or less fundamental stuff. It is easy to envision an arrangement involving fewer atoms, or even one which would serve as the null world (presumably the null set). But how might we construct an arrangement corresponding to an increase in the amount of fundamental matter? ... It seems, then, that any choice of a stock of atoms commits the combinatorialist to the *necessary* nonexistence of any more atoms, since there will be no arrangement and hence no

possible world in which there exists an atom that is not one of our
prechosen[*sic*] stock....(305-6)

Lycan's worry is that M-Combinatorialism cannot give credence to the intuitions behind **Aliens** and **Absentees**. However, his argument goes, it is perfectly conceivable that (1) the world could have contained more or fewer simples and sums and (2) those simples and sums that actually exist could have failed to exist.³¹ I believe that the M-Combinatorialist can make two responses to those who share Lycan's intuitions. The first response I will consider is the weaker response.

The M-Combinatorialist might respond by dividing up the notion of possibility and conceding that SQML and M-Combinatorialism are not compatible with one of those types of possibility. Consider two kinds of possibility, world-relative possibility and world-neutral possibility:

ϕ is *world-relatively possible* if ϕ is possible relative to a fixed domain of individuals and a specific set of non-logical restrictions on possibility

³¹ Of course, Lycan's objection could be applied to universals as well. Unlike Armstrong, I allow for the existence of unexemplified universals, so it's not clear that Lycan's objection would still hold: after all, universals are often considered to be candidates for necessarily existing entities, whether or not they are exemplified. I suspect that Lycan would have difficulty convincing us that there could have been, say, more universals than there actually are. Cf. Armstrong, Chapter 4.

ϕ is *world-neutrally possible* if ϕ is possible, though not relative to a fixed domain of individuals nor a specific set of non-logical restrictions on possibility³²

Statements of world-relative possibility are statements about how the inhabitants of a particular world could have been. World-relative possibility is restricted by modal axioms; axioms that restrict which exemplifications of properties, states-of-affairs, etc. are possible, relative to a world.³³ For any given restriction on possibility relative to a world, there will be a world-relative, non-logical axiom that will preclude that possibility. In physical worlds, for example, those non-logical axioms could be conceived as the laws of nature. Statements of world-neutral possibility are (1) not restricted by the modal axioms of any given world and (2) not restricted by the inhabitants of any specific possible world. World-neutral possibility comprises both logical and metaphysical possibility. World-neutral possibility is always restricted by logical axioms and can be

³² I take this to be a novel distinction. Some might argue that I have supplanted nomological possibility with world-relative possibility and broadly logical or metaphysical possibility with world-neutral possibility. However, I argue (1) that world-relative possibility respects the intuitions of those who believe that simples are nonphysical, noncausal entities, (2) world-relative possibility respects the intuitions of those who deny that there are laws of nature or laws of causality, (3) that world-neutral possibility is a helpful way to understand possibility independent of one's beliefs about the legitimacy of metaphysical possibility, and, finally (4) that world-neutral possibility captures the intuition that when entertaining such possibility, we abstract away from the inhabitants of the actual world—we are not entertaining which laws of metaphysics hold, etc.

³³ This is a key point: Armstrong suggests that all recombinations of universals and atoms are permissible, though this is not obviously the case for the M-Combinatorialist (77-86). Imagine a sum consisting of simples that weighs 1 kg. Is it possible that such a sum weigh 1 mg? This is an area worth exploring for the M-Combinatorialist.

restricted by metaphysical axioms, if one wants to entertain so-called “metaphysical possibility.”

One could argue that SQML is the logic of *world-relative possibility* and that M-Combinatorialism provides the best semantics for SQML. It should not surprise us, they will argue, that schemas like **BS** and **NE** are true in all models of SQML. If we are speaking strictly in terms of *world-relative possibility*, then **BS** should not seem strange: take any given world, with its inhabitants and its axiomatic restrictions on possibility and, supposing that the existence of some complex object is possible, ask “is there some actual sum that could have been that object?” If said complex object’s existence is not ruled out by one of the axiomatic restrictions and does not require more, fewer, or different simples/sums than are in the world of consideration, then that object could have existed. **NE** ought to make more sense as well. Since we are only considering possibility *relative to a world*, claims about inhabitants outside of that world are false. So, there is a sense in which the inhabitants of the world in question exist necessarily, relative to the world in which they exist.

Unfortunately, if they took this line, the M-Combinatorialist would be forced to submit that SQML is *not* the logic of world-neutral possibility, as world-neutral possibility is simply too malleable for SQML to handle. Let’s say, for example, that it is world-neutrally possible that the actual world could have had no simples, more simples, radically different simples, etc. While such a world is world-relatively impossible relative to the actual world, we have no world-neutral reason to doubt its possibility. We cannot expect SQML with an M-Combinatorialist semantics to handle such a world-

neutral claim—it is simply outside the scope of our formal system and semantics. Those who consider world-neutral possibility to be a legitimate form of possibility will consider its incompatibility to be a defect of SQML.

However, it strikes me that a stronger response for the combinatorialist is simply to abandon **Aliens** and **Absentees** with respect to simples, sums, and universals. The combinatorialist can argue that possibility and necessity are fundamentally restricted by the actual world: all statements of possibility must be restricted to the possible configurations of the actual world. All other statements of possibility unrestricted by what actually exists are the product of metaphysical extravagance—world-relative possibility is the only legitimate form of possibility. SQML is the logic of world relative possibility, M-Combinatorialism provides the best semantics for SQML, and intuitions unrestricted by the contents of the actual world are worth abandoning. If the combinatorialist makes this stronger response, she can consistently maintain that SQML is an adequate modal logic amenable to her actualist commitments.

5.4 COULD RUSSELL HAVE BEEN A POACHED EGG?

It is a key feature of M-Combinatorialism that its ontology contains modally malleable individuals. In the previous section, I detailed the M-Combinatorialist's conception of complex objects as mereological sums of simples, where the properties of those sums change given the arrangement of those simples. It is also key to the theory that it is a sum's constitutive simples that give it its particularity: in other words, the M-Combinatorialist individuates sums based solely on their constitutive simples. This view of individuation is clearly at odds with any view that requires individuation based on

essential properties, like Plantinga's view. So, a possible objection might go, M-Combinatorialism is at odds with the intuitive view that what is essential to an object's identity is some subset of its properties and not its component material parts. I will illustrate this worry with an example from Armstrong. He writes,

It may be held that [Combinatorialism] is too latitudinarian because it would permit anything to be of almost any nature. It would permit Bertrand Russell to be a poached egg, to adapt an example of Pavel Tichy's. Yet is this really a possibility?

Russell, of course, is not a simple individual. But we are at present assuming that he is made up of simple individuals. Could these individuals have had certain properties, certain relations to each other, and perhaps to other individuals having certain properties, such that the original individuals so propertied and related constitute a poached egg?

(51) The M-Combinatorialist is committed an affirmative answer to this question.

Some will find this possibility absurd: they claim that Russell is not merely a sum of simples arranged in a certain way, but is a sum with certain essential properties. The claim is that since the (giant) poached egg created by rearranging Russell's simples fails to exemplify those essential properties, that poached egg is not identical to Russell. However, the M-Combinatorialist is committed to the view that the egg *is* identical to Russell insofar as it is constituted by the same simples that constitute Russell. So, it seems that M-Combinatorialism is in direct conflict with this apparently intuitive position. How can the M-Combinatorialist respond?

Before I offer the M-Combinatorialist's response, it will be helpful to clarify the essentialist intuitions. To do that I will employ Armstrong's concepts of *thin* and *thick* particulars. A thin particular is, according to Armstrong, "the particular in abstraction from all its properties and relations, the particular *qua* particular only"(52). For our purposes, a thin particular is either a mereological sum or a simple considered apart from the properties it exemplifies. Considered as a thin particular, Bertrand Russell is a sum of simples and nothing more. A thick particular is a mereological sum of simples considered along with all of the properties that it exemplifies. Considered as a thick particular, Bertrand Russell is a mereological sum that is also Caucasian, male, a philosopher, etc.

Ordinarily, when the essentialist conceives of Russell as an individual, she conceives of what Armstrong calls a "particular of intermediate thickness"—we think of some of his properties as being essential to his identity and some of his properties as being nonessential to his identity (53). (After all, if we conceived of Russell only in his full thickness, we would have difficulty imagining how he could retain his identity through change in his properties.) So, when we imagine what Russell could have been, we imagine an individual with Russell's constitutive simples *and* some essential properties (like his humanity, etc.). Considered as an intermediately thick particular, Russell could not have been a poached egg. But, considered as a thin particular, Russell could have been a poached egg. However, the M-Combinatorialist does not countenance the existence of anything other than thin particulars. Let's see why.

The quantifiers of SQML cannot be interpreted as ranging over anything other than thin particulars. If the quantifiers of SQML are interpreted as ranging over thick particular, the M-Combinatorialist will have difficulty justifying the validity of **BS**. For example, considered as an intermediately thick particular, the Pope's child might be said to have the essential property of being a child of the Pope. If the quantifiers of SQML are interpreted as ranging over intermediately thick particulars, then **BS** will require not only that there exist some mereological sum (and some simples) that could have been the Pope's child, it will also require that there exist something that already exemplifies the property of being a child of the Pope (or some relevant essential property). By hypothesis, however, no such mereological sum exists, so **BS** is invalidated. The essentialist will understand this result to be a defect of M-Combinatorialism, as she conceives of individuals as (intermediately) thick particulars.

The best response for the M-Combinatorialist to make to the essentialist is simply to deny these intuitions and the existence of thick particulars: the M-Combinatorialist should deny (consistent with her theory) that thick particulars exist, strictly speaking. While talk of thick particulars may be of pragmatic use, it is not talk that adequately represents reality's fundamental structure. Though this response requires us to drop some of our (vague) intuitions about essential properties, this is a sacrifice worth marking if that sacrifice results in a lean theory that has valuable applications to our understanding of modality (Armstrong, 53).

6. CONCLUSION

The primary goal of this thesis is to provide an elegant, actualist semantics for the Simplest Quantified Modal Logic. I have argued that previous attempts to give SQML a coherent semantics have come at the cost of positing metaphysical entities and metaphysical structure, a cost I believe to be unnecessary given the power of the M-Combinatorialist's semantics. Obviously, there is still work to be done developing a full-blown theory of M-Combinatorialism: a fully-developed theory will, at minimum, (1) settle disputes about the nature of the fundamental entities the M-Combinatorialist posits (2) give an explicit metaphysical account of the notion of an 'arrangement' (3) give an explicit account of the restrictions of world-relative modality, whether they be physical, metaphysical, logical, etc. so that the space of possible recombinations can be mapped and (4) provide M-Combinatorial accounts of our intuitions of possibility and necessity. However, it has not been the goal of this thesis to provide a full account of M-Combinatorialism, but merely to show that it provides a fully actualist semantics for a simple modal extension of familiar classical predicate logic. Insofar as it has achieved that goal, I consider it a success.

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