

A New Defence of Natural Class Trope Nominalism

by

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Abstract

According to natural class trope nominalism, properties are natural classes of tropes, where the “naturalness” of natural classes is taken to be primitive and unanalyzable. In this thesis I defend natural class trope nominalism from two objections: i) that the naturalness of natural classes *is* analyzable, and ii) that natural class trope nominalism cannot account for certain modal facts (namely, that there could have been more or fewer tropes of any given type), an objection raised by Nicolas Wolterstorff. I defend natural class trope nominalism from (i) indirectly by presenting several putative analyses (namely, those of D. M. Armstrong, Keith Campbell, and Gonzalo Rodriguez-Pereya) of natural classes and arguing that they are all deficient, thereby undermining the claim that natural classes are analyzable. Douglas Ehring has recently defended natural class trope nominalism from (ii) by developing a counterpart theory for types of tropes. However, counterpart theory is not universally accepted. So I present three non-counterpart-theoretic alternatives. The natural class trope nominalist can meet Wolterstorff’s objection by a) positing existent, but uninstantiated, tropes, b) by accepting modal realism, and c) by accepting a thesis called ‘transworld property exemplification’.

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Introduction

Any objects, where ‘objects’ is taken in its widest possible sense, can be members of a set. For example, there is a set whose sole members are Nelson Mandela, the letter ‘u’, and the top half of Mount Everest. There is also a set whose sole members are all the red objects. There is an obvious difference between these two sets: the set of all the red objects exhibits a naturalness, a unity, that is not exhibited by the set whose members are Nelson Mandela, the letter ‘u’, and the top half of Mount Everest. This sort of unity, however, is not unique to the set of all the red objects. The set of all the extended objects, the set of all the fragile objects, and the set of all the contingently existent objects also exhibit this sort of unity. We might call this sort of unity ‘class unity’. Sets of objects that exhibit class unity, such as the set of all the red objects, we might call ‘natural classes’. Sets of objects that do not exhibit class unity we might call, along with Anthony Quinton, ‘arbitrary classes’.¹ This appears to be an exhaustive distinction: for any set of objects x , x is either a natural class or an arbitrary class. It also appears to be an exclusive distinction: for no set of objects x , is x both a natural class and an arbitrary class.

Natural classes exhibit class unity, whereas arbitrary classes do not. This fact can also be alluded to in the following ways: the members of a natural class are all of a certain type, whereas arbitrary classes are not; the members of a natural class share a certain property,² whereas the members of an arbitrary class do not; the members of a natural class all resemble each other, whereas the members of an arbitrary class do not.

¹ See Quinton, “Properties and Classes.” The notion of class unity does not entail the epistemic claim that, for any class, if it is a natural class, then its class unity is knowable to some knower. A class can be a natural class even if its class unity is not apparent to any knower.

² This use of the term ‘property’ is not intended to anticipate the realist analysis.

These phrases, however, are not, in themselves, all that enlightening; they are merely different ways of pointing out the same fact. What is required is an explanation or analysis of class unity. Analyses of class unity have been the substance of a venerable debate in the history of philosophy called ‘The Problem of Universals’.

Some philosophers (called ‘realists’) have analyzed natural classes of particulars in terms of universals. Realists claim that a set of particulars is a natural class if and only if each member of the set has a universal in common. Particulars are the ordinary objects that populate our world. Examples of particulars abound. Baseballs, spaceships, and automobiles are all particulars. Particulars often have many different characteristics. Realists claim that the different characteristics of any given particular are universals. Universals endow particulars with their specific nature, giving them the characteristics they have, and can be had by many different particulars simultaneously. When this is the case, for example, when several particulars are simultaneously real, it can truthfully be said of the various red particulars that they all (quite literally) have something in common: namely, the universal redness. Redness is wholly and fully in each red particular, and the redness universal had by one red particular is identical—numerically, not merely qualitatively—to the redness universal had by another red particular.

Many philosophers, unlike realists, do not countenance universals. These philosophers are nominalists. Nominalists come in many different forms. Some nominalists are trope nominalists. Trope nominalists analyze natural classes of particulars in terms of tropes. These philosophers claim that a set of particulars form a natural class if and only if each member of the set has a trope of a certain type. Tropes are ‘abstract particulars’. They are abstract in that they make up the nature of any given

particular. In this way tropes function as universals do. Tropes are particular in that they can only be had by a single particular at a time. In this way tropes are radically different than universals. Whereas a universal can be had by a multitude of concrete particulars simultaneously, a trope is limited to only one. Take a set of red particulars. According to the trope theorist, these red particulars, even if they resemble one another exactly, do not literally have anything in common; they do not share an entity amongst themselves in the way that many different objects can share a universal at a time.

Realists analyze natural classes of particulars in terms of universals, and trope theorists analyze natural classes of particulars in terms of tropes. But tropes, just like concrete particulars, can also fall into natural classes. And natural classes of tropes, just like natural classes of concrete particulars, require analysis. Some trope theorists take natural classes of tropes to be analyzable. Resemblance trope nominalists, for instance, say that a set of tropes is a natural class if and only if each member of the set resembles every other member of the set. In this way resemblance trope nominalists place resemblance between tropes rather than natural classes on the ground floor of analysis. Other trope theorists argue, contrary to the resemblance trope nominalist, that natural classes of tropes are unanalyzable; these trope theorists are natural class trope nominalists.

Many philosophers believe it to be intuitively plausible that natural classes are *analyzable*. Motivated by their intuitions that natural classes are analyzable, these philosophers argue that natural class trope nominalism incurs a cost in taking natural classes to be unanalyzable. Moreover, these philosophers support their claim that natural classes are analyzable by advancing their own analyses of natural classes. This thesis is a

defence of natural class trope nominalism. There are two parts to my defence of natural class trope nominalism. First, I will defend the natural class trope nominalist's claim that natural classes are unanalyzable. I will not defend this claim directly by providing a transcendental argument to the effect that no analysis of natural classes is possible; rather, I will provide some indirect support for the claim by showing how some putative analyses of natural classes fail. In Chapter 1, I argue that D. M. Armstrong's realist analysis of class unity (or natural classes) is inadequate. If I am correct in this, then Armstrong cannot justifiably claim that his account of natural classes is preferable to that of the natural class trope nominalist on the basis that he can provide an analysis of natural classes.

Resemblance trope nominalists also take natural classes to be analyzable. If resemblance trope nominalists can offer a successful analysis of natural classes, then, perhaps, resemblance trope nominalism is to be preferred over natural class trope nominalism. In Chapter 2, I argue that a resemblance trope nominalist's analysis of natural classes is, like Armstrong's, also inadequate. Again, if I am correct in this, then the resemblance trope nominalist cannot claim, on the mere basis that he can provide an analysis of natural classes, that his account of natural classes is preferable to that of the natural class trope nominalist. In fact, I will argue that there is good reason to suppose that Armstrong and the resemblance trope nominalist must themselves take at least *some* natural classes to be unanalyzable. If this is right, the natural class trope nominalist's dialectical position on the Problem of Universals is significantly strengthened.

Having defended the natural class trope nominalist's claim that natural classes are unanalyzable, I will, second, defend natural class trope nominalism from a common

objection that has been raised against it. This objection aims to show that, contrary to a central thesis of natural class trope nominalism, types are not identical to natural classes. Nicholas Wolterstorff has argued against the practice of identifying types with natural classes by showing that, although types can have more tokens than they actually have, classes cannot have more members than they, in fact, have; classes have their members essentially. Douglas Ehring has defended natural class trope nominalism from Wolterstorff's objection. Ehring's defence relies upon a counterpart theory for types of tropes. In Chapter 3, I will present Wolterstorff's objection against natural class trope nominalism and recount Ehring's counterpart-theoretic defence of natural class trope nominalism from Wolterstorff's objection. Ehring develops his counterpart-theoretic defence of natural class trope nominalism for two different theories of modality: Mark Heller's version of actualism and Armstrong's combinatorial theory of possibility. I believe that Ehring's defence is successful for Heller's actualism but that it fails for Armstrong's theory of modality. In Chapter 4, I will show why Ehring's counterpart-theoretic defence of natural class trope nominalism fails for Armstrong's theory of modality. Although Ehring's counterpart-theoretic defence of natural class trope nominalism seems to be successful, counterpart theory is not universally accepted. Thus, if a defence of natural class trope nominalism from Wolterstorff's objection could be mounted that did not rest upon counterpart theory, natural class trope nominalism would be the better for it. In Chapter 5, I will defend natural class trope nominalism from Wolterstorff's objection by advancing three different ways in which a natural class trope nominalist can meet Wolterstorff's objection without relying upon a counterpart theory for types.

Chapter 1: Armstrong's Natural Classes of Universals

Some philosophers, including natural class trope nominalists, take natural classes and class unity to be unanalyzable.³ Realists are of the opinion that natural classes *are* analyzable. Take any set of particulars, says the realist; if they exhibit class unity and thereby form a natural class, it is because they all have a universal in common. For example, the set of all the red objects exhibits class unity because all the objects in the set have a common universal: namely, redness. So, at the level of particulars, it seems that class unity can be analyzed. But, for the realist, there are, not only natural classes of particulars, but also natural classes of universals. Natural classes of universals (e.g. the set of all the redness universals, the set of all the length universals, and the set of all the shape universals) exhibit the same sort of unity as natural classes of particulars do. Thus, if the realist, in claiming that natural classes are analyzable, is making a *general* claim about natural classes, the realist must also provide an analysis of natural classes of universals. Realist accounts of the unity of natural classes of universals are varied. Some, following the terminology of W. E. Johnson's discussion of determinable and determinate adjectives,⁴ posit determinable universals.⁵ Armstrong, however, doesn't

³ G. F. Stout defends this view in at least two works: "The Nature of Universals and Propositions" and "Universals Again." W. V. Quine also seems to hold this view. (See Quine, "On What There Is," 29-30.) Although it might be problematic to classify Anthony Quinton as a nominalist, he claims that the existence of natural classes is a brute fact and that they are not the sort of things that can be explained. (See Quinton, "Properties and Classes," 46-47.)

⁴ According to W. E. Johnson, determinates "belong to" determinables. This way of belonging, however, is not to be confused with the way in which particulars belong to classes. Determinates are unified under a determinable by the special kind of difference that obtains between them. He says that several determinate rednesses "are put into the same group (under the determinable colour) and given the same name, *not* on the ground of any partial agreement, but on the ground of the special kind of difference which distinguishes one colour from another" (Johnson, *Logic: Part 1*, 176). (The emphasis is in the original.) The difference between determinate shapes, says Johnson, is of another sort than the difference between determinate colours.

⁵ One example of an account positing determinable universals is that presented by Evan Fales. In a critique of Armstrong's account of the resemblance of universals, he seems to defend the view that, for every

admit determinable universals. He advances an analysis of natural classes of universals in which class unity follows from resemblance relations between universals, where resemblance is a matter of partial identity.

In this chapter I evaluate Armstrong's account of natural classes of universals. I argue that Armstrong's resemblance account of natural classes of universals fails. (Throughout the remainder of this chapter, when I speak of natural classes, I refer specifically to natural classes of universals. I will also often refer to class unity. Only natural classes exhibit class unity. Thus, an account of class unity is also an account of natural classes and vice versa. Armstrong frames his discussion of natural classes of universals in terms of class unity. In speaking of class unity throughout this chapter I am merely following Armstrong. Since I am evaluating Armstrong's account of natural classes of universals, when I refer to class unity, I will most often be referring specifically to the class unity of classes of universals. When I intend to refer to the class unity of natural classes of particulars, I will make this clear.) Because Armstrong's resemblance account of class unity fails, and because he doesn't provide a transcendental argument for the claim that class unity *is* analyzable, he cannot, justifiably, object to the natural class trope nominalist's claim that natural classes are unanalyzable—something Armstrong has, in fact, done in the past.⁶

determinate universal, there are co-instantiated with it as many determinable universals as there are resemblance classes to which it belongs. (See Fales, "Generic Universals.")

⁶ See Armstrong, *Universals: An Opinionated Introduction*, Chapter 2.

1.1 Armstrong's Account of Resemblance⁷

According to Armstrong,

resemblance is always *identity of nature*. This identity is partial in partial resemblance, and complete in complete resemblance.⁸

For instance, when two particulars have all their universals in common, they resemble completely; when two particulars do not have all their universals in common, but have at least one universal in common, they resemble partially.⁹

Two particulars, however, might resemble even when they do not have *any* universals in common. Particulars can resemble if they merely have resembling universals. Thus, Armstrong's account of the resemblance of particulars might be stated in the following way: two particulars resemble if and only if either (i) they have at least one universal in common, in which case they are partially identical, (ii) they have all of their universals in common, in which case they are completely identical, or (iii) they have resembling universals.¹⁰

Universals resemble each other if and only if there is a partial identity between them.¹¹ Universals, however, do not themselves have universals. Therefore, partial identity between universals is not wholly analogous to partial identity between particulars. Particulars are partially identical when they have at least one universal in common; however, whenever universals are partially identical, they have at least one common *constituent* universal. Conjunctive universals and structural universals have

⁷ Armstrong presents his account of resemblance first in *Universals & Scientific Realism* and then subsequently in "Are Quantities Relations? A Reply to Bigelow and Pargetter," *Universals: An Opinionated Introduction* and *A World of States of Affairs*.

⁸ Armstrong, *Universals & Scientific Realism*, vol. 2, *A Theory of Universals*, 95.

⁹ *Ibid.*, 95-98.

¹⁰ Armstrong makes point (iii) explicitly only in *Universals: An Opinionated Introduction*, 102.

¹¹ No two universals can be completely identical because, due to the identity conditions for universals, complete identity between universals entails numerical identity. This is not the case with particulars. Particulars, according to Armstrong, can be completely identical without being numerically identical.

constituent universals. Partial identity, or partial resemblance, between conjunctive universals is fairly straightforward.¹² Consider two conjunctive universals P and Q: P is the conjunctive universal M&G (*having mass n & having charge y*); Q is the conjunctive universal M₂&G (*having mass 2n & having charge y*). Universals P and Q are partially identical because P and Q have a common constituent universal: namely, G.¹³

Partial identity between structural universals is more indirect than that between conjunctive universals. A universal *w* is a structural universal if every *x* that has *w* has a proper part *y* that has some universal *z*, where $z \neq w$ and *y*'s having *z* is, at least in part, constitutive of *x*'s having *w*.¹⁴ Like conjunctive universals, structural universals are partially identical if they have a common constituent universal, though constituent universals of structural universals have different formal characteristics than constituent universals of conjunctive universals. The constituent universals of a conjunctive universal are just its conjuncts. A constituent universal of a structural universal can be defined in the following way: a universal *z* is a constituent universal of a structural universal *w* if and only if *z* is had by a proper part of everything that has *w* and, for any *x* that has *w*, *z*'s being had by a proper part of *x* is, at least in part, constitutive of *x* having *w*. This might be made more clear with an example. Consider the structural universals H and C. Take H to be *being H₂O* and C to be *being CO*. H and C have a common constituent, because anything that has H has a proper part that has O (namely, *being oxygen*) and anything that has C also has a proper part that has O; that is, every water

¹² For Armstrong's account of partial identity between conjunctive universals, see *Universals & Scientific Realism*, vol. 2, *A Theory of Universals*, 121.

¹³ Partial identity of resembling conjunctive universals turns out to entail straightforward partial identity between particulars. Any particular that has P also has the universals M and G, and any particular that has Q also has the universals M₂ and G. Therefore, there is a partial identity between something *x* that has P and something *y* that has Q, since *x* and *y* have a common universal: namely, G.

¹⁴ Armstrong, *Universals & Scientific Realism*, vol. 2, *A Theory of Universals*, 69.

molecule has a proper part that is an oxygen atom and every carbon monoxide molecule also has a proper part that is an oxygen atom. The proper parts of a water molecule are not themselves water molecules: two of its proper parts are hydrogen atoms, one of them is an oxygen atom, and these atoms are related to each other in a way that is constitutive of something being H₂O. Likewise, the proper parts of a carbon monoxide molecule are not themselves carbon monoxide molecules: one of its proper parts is a carbon atom, one of them is an oxygen atom, and these atoms are related to each other in a way that is constitutive of something being CO.

Thus, resemblance is always what Armstrong calls 'identity of nature'. When particulars resemble, they resemble because there is some degree of identity between them. And, when universals resemble, they resemble because there is some degree of identity between them. For universals, partial identity obtains when they have common constituent universals. For particulars, identity obtains when they have universals in common. Even when particulars have only resembling universals, a partial identity still obtains, though the partial identity is one step removed; that is, when particulars resemble via resembling universals, partial identity obtains between their proper parts.

1.2 Problems for Armstrong's Account of Resemblance

There are at least two questions that can be raised for Armstrong's account of the resemblance of universals: (i) Does Armstrong's account suffice as an account of resemblance? and (ii) Does Armstrong's account suffice as an account of class unity? The primary focus of this chapter is question (ii). However, Armstrong's account of resemblance commits him, *a priori*, to a few contentious claims. These claims weigh

against the adequacy of Armstrong's account with respect to question (i). Before I address question (ii), I will present some claims that Armstrong must accept as a consequence of his view.

First, Armstrong must reject the possibility that simples (i.e. objects that have no proper parts) can be extended. This entailment of Armstrong's view becomes evident when his analysis of the resemblance of length universals is considered. All length universals resemble each other, at least to some degree. Length universals are structural universals and, as such, they resemble because they have common constituents. So any particular that has a length universal must have proper parts, because, given Armstrong's account of structural universals and the fact that all length universals resemble each other, any particular that has a length universal has a proper part. But simples do not have any proper parts. Therefore, since simples cannot have length universals, they cannot be extended.

This conclusion, that simples cannot be extended, has recently been contested by Kris McDaniel and Josh Parsons. They have both argued that extended simples *are* possible.¹⁵ Armstrong, before dismissing extended simples outright, must provide some reasons to suppose that extended simples are, in fact, impossible.

Second, Armstrong must reject the possibility that simples can resemble even if they don't have any universals in common.¹⁶ Simples cannot instantiate structural universals, because structural universals require particulars that instantiate them to have proper parts. Thus, if any two simples resemble each other, they must resemble each other because they have a common non-structural universal. Is this conclusion consistent with common

¹⁵ Kris McDaniel, "The Shape of Extended Things" and Josh Parsons, "Must a Four-Dimensionalist Believe in Temporal Parts?"

¹⁶ Armstrong alludes to this situation. (See Armstrong, *A World of States of Affairs*, 52, 57.)

intuition? Is it common intuition that resemblance is *always* based on identity or partial identity? Consider a case of two simples A and B. A is a point-particle with a negative charge; B is a point-particle with a positive charge. Suppose, furthermore, that charge, either positive or negative, is not a structural universal. It seems that A and B resemble—pre-theoretically, we might say that they resemble in their having charge. On Armstrong's view, however, they cannot resemble. The non-structural universals *having positive charge n* (where *n* is some minimal unit) and *having negative charge n* are not identical. Because their respective non-structural universals are non-identical, there is no identity or partial identity between them. Because there is no identity or partial identity between them, they cannot, on Armstrong's view, resemble each other. Any philosopher who has an intuition similar to mine, namely, that simples A and B resemble, has reason to be dissatisfied with Armstrong's account of resemblance.¹⁷

Third, Armstrong's account of resemblance requires that it be possible for the proper parts of particulars to be co-located.¹⁸ Consider two kinds of point-sized particles: *x*s and *y*s. Both the *x*s and the *y*s have non-zero masses; however, the mass of an *x* is less than the mass of a *y*. Masses, like lengths, form a natural class of universals, so the mass universal instantiated by the *y*s must resemble the mass universal instantiated by the *x*s.

¹⁷ Incidentally, I think that this case brings to the fore a flashpoint over which there is fundamental disagreement between many realists and nominalists. The realist is inclined to take, in a fundamental sense, resemblance as being based on identity or partial identity. Any view, according to the realist, that does not take into account this intuition is flawed from the outset. The nominalist has a starkly contrasting worldview on this matter. The nominalist believes that he or she can imagine a case, as in the case of simples A and B, in which there is resemblance but no identity or partial identity. Because, to the nominalist, this is how the world seems to be, the nominalist is inclined, at the outset, to view any account of resemblance that takes resemblance to be based on identity or partial identity as needlessly constrained; the nominalist will wonder what it is that motivates the notion that resemblance is necessarily based on identity or partial identity.

¹⁸ Armstrong discusses this case in "Are Quantities Relations? A Reply to Bigelow and Pargetter," 314-315 and in *A World of States of Affairs*, 64-65.

Thus, Armstrong's account requires that the *ys* have proper parts. But the *ys* are point-sized particles. Therefore the proper parts of any *y* *must* be co-located.

This conclusion, while somewhat unintuitive and, if true, surprising, does not result in a logical absurdity. However, Armstrong's requirement that the *ys* have proper parts seems to play high-handedly with science. Consider two kinds of sub-atomic particles: muons and electrons. Muons are thought to be point-sized particles that differ from electrons only in their mass—muons have a greater mass than electrons.¹⁹ Whether muons or electrons have proper parts seems to be a matter that is best left to the scientists. Armstrong, however, must maintain, before the requisite scientific exploration has taken place, that muons have co-located proper parts.²⁰

This criticism against Armstrong, that his account of resemblance plays high-handedly with science, can also be raised with respect to the first objection considered in this section. If McDaniel and Parsons are right, then extended simples are, at least, possible. Once this conclusion is established, it seems that it should be left to the scientists to discover whether extended simples exist in the actual world or merely in some other possible world. Now, some philosophers are quite content to play high-handedly with science. These philosophers are free to accept the first and third consequences outlined in this section; however, Armstrong does not have the same freedom. The tenor of Armstrong's scientific realism precludes him from accepting the consequences in question. For instance, Armstrong leaves it to mature science to tell us what universals there are; he claims that mature science will delineate what universals

¹⁹ The electron is thought to have a mass of .511 MeV, whereas the muon is thought to have a mass of 105.7 MeV.

²⁰ In *A World of States of Affairs*, Armstrong claims "it is not at all obvious that two particulars could not exist at the same place and time," but, he says, "we should in this matter seek guidance from science rather than philosophy." (Armstrong, *A World of States of Affairs*, 109.)

there are by delineating what causal powers, both active and passive, there are. He also claims that every unique causal power corresponds to a universal and that no universal shares a causal power with any other universal.²¹ Armstrong can accept the preceding consequences, namely, the impossibility of extended simples and the co-location of proper parts, only if he breaches one of the goals of his project.²²

1.3 Problems for Resemblance Accounts of Class Unity

In the previous section I raised problems for Armstrong's account as an account of resemblance. In the next two sections I will deal with the primary focus of this chapter: Armstrong's resemblance account of class unity. There is reason to suppose that all attempts to account for class unity via resemblance are liable to fail. I will, in this section, present an argument to motivate this claim. Then, in the next section, I will evaluate Armstrong's account as an account of class unity. I will show that Armstrong's resemblance account of class unity fails in the same way that other resemblance accounts of class unity are liable to fail.

²¹ Armstrong, *Universals & Scientific Realism*, vol. 2, *A Theory of Universals*, 43-44.

²² It is, perhaps, worth mentioning that Armstrong seems to have deferred an objection that was raised by David Lewis against his original formulation of the resemblance of universals. The objection involved the difficult, though maybe not insurmountable, task of explaining the nature of the relation between a structural universal and its constituent universals. In *Universals & Scientific Realism* Armstrong employed the language of mereology; he said that structural universals have other universals as parts. David Lewis pointed out that a mereological composition view of structural universals is fraught with difficulties. (See Lewis, "Against Structural Universals.") Armstrong has since taken Lewis's criticisms into account and, in more recent works, has recanted his earlier mereological view of structural universals. (In "Are Quantities Relations? A Reply to Bigelow and Pargetter," 312, and *Universals: An Opinionated Introduction*, 91-93, 101, Armstrong says that structural universals involve their constituent universals in a way analogous to the way that states of affairs involve their constituents.) Lewis has himself suggested that structural universals and their constituents might be related via necessary connections. (See Lewis, "Truthmaking and Difference-Making," 613.) Whether Armstrong can make constituent universals and their connection to structural universals coherent remains an open question. Armstrong does, however, seem to have deferred the initial objections to his mereological view of structural universals.

Members of any given natural class resemble. Because the members of a natural class resemble, there is a temptation to claim that class unity is based on resemblance. This claim, however, is problematic.²³ The problem, traditionally posed for resemblance accounts of class unity for natural classes of particulars, has to do with the over-determination of paradigms.²⁴ Particulars, because they have many different attributes, resemble other particulars in many different ways. Thus, a paradigm particular, like other particulars, belongs to several different resemblance orders. For instance, a tennis ball belongs to the resemblance orders of the yellow objects, of the spherical objects, of the objects that have mass, *et cetera*. This fact about paradigm particulars has the following consequence: if class unity is based on resemblance *simpliciter*, then, contrary to my earlier description, some arbitrary classes exhibit class unity.

Suppose that resemblance *simpliciter* is the basis of class unity for classes of particulars. This view could be stated in the following way: for any paradigm particular x , any particular y that resembles x is a member of the class z , and z exhibits class unity. Consider a tennis ball as a paradigm particular. Any particular that resembles the tennis ball is a member of class z . Thus, yellow canaries, yellow lollipops, and yellow sports cars are members of z . But tennis balls are not only yellow; they are also spherical. Beach balls, basketballs, and volleyballs are also spherical and, thus, they also resemble the tennis ball. So beach balls, basketballs, and volleyballs are also members of z . According to the resemblance *simpliciter* account of class unity, z exhibits class unity.

²³ Realists have made sure to point this out against nominalists who employ resemblance to account for class unity with respect to natural classes of particulars. It is significant that Armstrong, who is a realist, employs resemblance to account for class unity.

²⁴ Armstrong raises this point against resemblance nominalism. (See Armstrong, *Universals & Scientific Realism*, vol. 1, *Nominalism & Realism*, 48.) This problem has been called 'the problem of the imperfect community' by Nelson Goodman. In Chapter 2, I present and evaluate various resemblance nominalist solutions to this problem.

But z does not seem to be a natural class. It is certainly not the natural class of yellow objects—some beach balls are red, most basketballs are brown, and most volleyballs are white—nor is it the natural class of spherical objects—canaries and sports cars are not spherical. If anything, z seems to be an arbitrary class. Arbitrary classes do not exhibit class unity. Yet, according to the preceding resemblance account, z does exhibit class unity. So the preceding resemblance account of class unity is wrong.

The problem of over-determination of paradigms, as it arose above for classes of particulars, arises in the same way for classes of universals. A resemblance *simpliciter* account of class unity for universals could be stated as follows: for any paradigm universal x , any universal y that resembles x is a member of the class z , and z exhibits class unity. Consider the determinate orangeness universal *orangeness*₂₀ as a paradigm universal. Any universal that resembles *orangeness*₂₀ is a member of a class z .

Universals, like particulars, can resemble in a variety of ways. For instance, universals might resemble in respect of their nature, their complexity, the frequency with which they are instantiated, and their correspondence, or lack thereof, to predicates. Thus, *orangeness*₂₀ resembles, in respect of nature, *orangeness*₂₁; *orangeness*₂₀ resembles *violet*₁₃ in respect of complexity—presumably, all colour universals are equally complex or equally simple; and *orangeness*₂₀ probably resembles numerous other universals in respect of the frequency with which it is instantiated and in respect of its correspondence to predicates. All these universals are members of z in virtue of their resemblance to *orangeness*₂₀. But, again, z does not seem to be a natural class of universals. At any rate, z is certainly not the natural class of orangeness universals, nor is it the natural class of colour universals. For instance, there might be a length universal that resembles

*orangeness*₂₀ in respect of complexity and there might be a shape universal that resembles *orangeness*₂₀ in respect of the number of times it is instantiated. This gives rise to the same problem that arose for classes of particulars. *z* is an arbitrary class. Yet, according to the resemblance account of class unity, *z* exhibits class unity. The resemblance account of class unity fails again.

Suppose, in response to the problem of over-determination, we were to specify that resemblance in a certain way or in a certain *direction* to a paradigm is the basis of class unity. Such an account could be stated in the following way: for any paradigm universal *w*, any universal *x* that resembles *w* in direction *y* is a member of class *z*, and *z* exhibits class unity. The added stipulation, that universals must resemble a paradigm case in a certain direction, avoids the problems created by the over-determination of paradigm universals. Consider, again, *orangeness*₂₀ as a paradigm universal. On this revised account, only one direction of resemblance generates class *z*. Thus, if it is resemblance in respect of nature to *orangeness*₂₀ that generates class *z*, then universals that resemble *orangeness*₂₀ merely in respect of complexity or frequency of instantiation are not members of *z*. For example, a length universal that merely resembles *orangeness*₂₀ in respect of complexity is not a member of *z*, because the length universal does not resemble *orangeness*₂₀ in respect of its nature. This has the positive result of reducing the arbitrariness of *z*.

However, the added stipulation, that the basis of class unity is resemblance in a certain direction, seems to be a covert way of presupposing class unity in the analysis.²⁵ Consider the failure of the resemblance *simpliciter* account and the success of the revised

²⁵ Stout makes a similar point against resemblance accounts of class unity. (See Stout, "Universals Again," 6-7.)

resemblance account. Resemblance *simpliciter* failed as an account of class unity because of the over-determination of paradigms; particulars and universals resemble each other in a variety of ways and thus the classes generated by resemblance *simpliciter* were neither unified nor natural. Only by appealing to directions of resemblance could the problem be solved. But, by appealing to direction of resemblance, the revised resemblance analysis of class unity appeals to class unity. Consider the class of orangeness universals. The goal was to answer this question: what is the basis of the class unity of the class of orangeness universals? The quick answer to this question was this: the class unity of the class of orangeness universals is based on resemblance. But which resemblance is the basis of the class unity? Is it resemblance in respect of complexity? Is it resemblance in respect of the frequency with which the members of the class are instantiated? No, the resemblance upon which the class unity of the class of orangeness universals is based is resemblance in respect of nature, the kind of resemblance that the class unity of the class of orangeness universals consists in. Which direction of resemblance accounts for the unity of any given natural class is determined by what unifies the class. So, if resemblance is to account for class unity, it seems that a certain direction of resemblance must be presupposed at the outset.

1.4 Problems for Armstrong's Resemblance Account of Class Unity

Up to this point, I have attempted to motivate the general claim that all resemblance accounts of class unity are liable to fail. I turn now to examine Armstrong's resemblance account of class unity. I argue that Armstrong's resemblance account of class unity fails. Armstrong's account fails for the same reason that other resemblance accounts fail:

namely, some of the classes that, on Armstrong's account, exhibit class unity are arbitrary classes.

Armstrong develops his resemblance account of class unity using, as an example, the class of length universals. Consider the length universal *being $\frac{1}{2}$ meter in length*. *Being $\frac{1}{2}$ meter in length* is a constituent of both the structural universals *being one meter in length* and *being two meters in length*; that is to say, any particular that is one meter in length has at least one proper part that has the universal *being $\frac{1}{2}$ meter in length*; any particular that is two meters in length also has at least one proper part that has the universal *being $\frac{1}{2}$ meter in length*; and, furthermore, having proper parts that have *being $\frac{1}{2}$ meter in length* is, at least in part, constitutive of a particular being one meter in length or being two meters in length. Armstrong argues that this is the basis of resemblance between *being one meter in length* and *being two meters in length* and that this resemblance is the basis of the class unity of the class of all the length universals.

Armstrong's account seems similar to our earlier formulation of the resemblance *simpliciter* account: every universal that resembles *being $\frac{1}{2}$ meter in length* is a member of a class z , and z exhibits class unity. (We need not, for the moment, worry about lengths that are shorter than $\frac{1}{2}$ meter; we could take the preceding account and substitute some sufficiently small length, maybe the shortest instantiated length, and develop the account using it.) We seem to be on the right track; all the universals that don't have *being $\frac{1}{2}$ meter in length* as a constituent are excluded from z . However, having *being $\frac{1}{2}$ meter in length* as a constituent is sufficient for membership in z . This is problematic. Consider the universal *being a squalf*, where a squalf is a square with sides that are $\frac{1}{2}$ meter in length. Any particular that has *being a squalf* will have at least one proper part

that has *being ½ meter in length*: namely, any one of its sides. Thus, *being ½ meter in length* proves to be a constituent, not only of *being one meter in length* and *being two meters in length*, but also of *being a squalf* and *being a squone*, where a squone is a square with sides that are one meter in length. If having *being ½ meter in length* as a constituent is sufficient for membership in *z*, then *being a squalf* and *being a squone* are also members of *z*.²⁶ By now, the problem with this account of class unity should be clear. *z* does not seem to be a natural class. If it is not a natural class, then it is an arbitrary class. But, if it is an arbitrary class, then it does not exhibit class unity. However, according to Armstrong's account of resemblance, *z* does exhibit class unity. So Armstrong's account is wrong.

It could, perhaps, be argued, in Armstrong's defence, that he never intended for the resemblance of universals to function as a sufficient condition for class unity. In *Universals & Scientific Realism*, Armstrong lists the four phenomena that he wishes to account for, and class unity is not one of them.²⁷ But, although Armstrong does not *explicitly* list class unity as one of the phenomena he sets out to account for, he seems to intend his resemblance account of universals to account for class unity. Consider the following passages from *Universals & Scientific Realism* (all the emphases are mine):

It will be assumed, then, that to say that *a* is red is to say that *a* has *some* property, a property which is a member of the class of properties, *viz.* the class of the absolutely determinate shades of red. *But what constitutes the unity of the class?* We have now to attempt an answer.²⁸

²⁶ Evan Fales also seems to have noticed this problem for Armstrong's account of class unity. (See Fales, "Generic Universals," 32-33.)

²⁷ Armstrong, *Universals & Scientific Realism*, vol. 2, *A Theory of Universals*, 116.

²⁸ *Ibid.*, 120.

It is, then, a hypothesis well worth examining, *that what unifies the class of universals which constitute the class of lengths is a series of partial identities holding between the members of the class.*²⁹

We have to account for what is common to all the lengths. We must explain what makes them all lengths. This is done when we see that any two members of the class of lengths ... stand to each other as whole to part or part to whole. *This is a very tight unity indeed.*³⁰

If Armstrong intends, as these passages seem to indicate, to give an account of the *unity* of the class of length universals, then, given the example I presented earlier, Armstrong's account fails to make good on his intentions. More importantly, unless Armstrong can provide an account of class unity, he cannot object to the natural class trope nominalist's taking natural classes to be unanalyzable. If what *unifies* the class of length universals is the relationship each member of the class bears to some constituent that is common to them all, then Armstrong has more work to do; he must tell us why squareness universals should be excluded from the class of lengths.

There is an avenue of defence that Armstrong might take in response to the problems I have raised for his account; he could accept some of the consequences of his account and claim that the only classes that exhibit class unity are the 'truly natural' classes, where truly natural classes are the ones whose members are universals that have but one monadic constituent universal. On this view, length universals would constitute a truly natural class, but squareness universals would not. For instance, only one monadic universal, *smidgen*, where *smidgen* is the smallest instantiated length universal, is needed to generate an infinite number of length universals. Of course, a dyadic universal is also required to generate length universals that are of greater lengths than *smidgen*; particulars that are longer than a mere smidgen have proper parts that bear a certain relation—call it

²⁹ Ibid., 121.

³⁰ Ibid., 123.

'close-by-near-to'—to each other. Thus, maybe the only constituent universals of length universals are *smidgen* and *close-by-near-to*.³¹

Squareness universals, on the other hand, have at least two monadic universals and several *n*-adic universals; for instance, *being a squone* has the monadic universals *being one meter in length*, which reduces ultimately to proper parts that have *smidgen*, *being a line*—*being a line* is not a *bona fide* monadic universal, but, for the sake of argument, I will assume that it is—and, possibly, the *n*-adic universals *close-by-near-to* and *being at a right angle* as constituent universals. Because squareness universals are related to more than one kind of monadic universal, the class of squareness universals would, on this account, not be a truly natural class.

This defence, however, does not save Armstrong's account of class unity. Armstrong may have given us an account of the class unity of truly natural classes, but what we wanted was an account of the class unity of natural classes. As long as there are classes, classes that are not truly natural classes, that exhibit class unity, Armstrong fails in his attempt to account for class unity.

When I introduced this chapter I alluded to the fact that, in the dialectic between natural class trope nominalists and realists, realists claim that class unity is, in principle, analyzable. This is one of the fundamental points of disagreement between realists and natural class trope nominalists. Thus, Armstrong needs an adequate account of class unity, not only to make good on his intentions, but also to maintain his position in the dialectic between realists and natural class trope nominalists; unless Armstrong can

³¹ Of course, *smidgen* is also a length universal. But *smidgen* is a simple universal and doesn't have any constituents. Thus, Armstrong would have to make an exception to his rule so that *smidgen*, a simple universal, could be a part of the truly natural class of lengths. This, however, doesn't seem to pose a significant problem for Armstrong.

provide a successful analysis of natural classes of universals or a sound transcendental argument for the analyzability of *all* natural classes, he cannot sustain his own argument against natural class trope nominalism. And, furthermore, until these arguments are provided, the natural class trope nominalist is free to take natural classes of tropes as unanalyzable.

Chapter 2: A Resemblance Trope Nominalist's Natural Classes

In the previous chapter I argued that Armstrong, a realist, fails to provide an analysis of natural classes and class unity. In this chapter I present and evaluate two analyses of natural classes that proceed in terms of a primitive resemblance relation: namely, the analyses presented by Keith Campbell and Gonzalo Rodriguez-Pereya. Campbell's analysis³² is a version of resemblance *trope* nominalism, whereas Rodriguez-Pereya's analysis³³ is a version of resemblance nominalism. Both resemblance trope nominalists and resemblance nominalists claim, first, that properties (or types) are to be identified with natural classes and, second, that natural classes are analyzable as classes of resembling entities. (Resemblance trope nominalists and resemblance nominalists *differ* in that, for the resemblance nominalist, properties are natural classes of resembling *particulars*; whereas, for the resemblance trope nominalist, properties are natural classes of resembling *tropes*.) If the resemblance nominalist or the resemblance trope nominalist is able to analyze natural classes in terms of resembling entities (particulars or tropes), the natural class trope nominalist's claim that natural classes are unanalyzable is undermined. I argue that both Campbell and Rodriguez-Pereya fail in their bid to defend resemblance analyses of natural classes.

It is commonly thought that resemblance trope nominalism avoids some of the traditional problems that have been raised for resemblance nominalism: problems such as, following the terminology of Nelson Goodman, the companionship difficulty (CD) and the difficulty of the imperfect community (IC).³⁴ (CD) arises in the following way.

³² See Keith Campbell, *Abstract Particulars*.

³³ See Rodriguez-Pereya, "Resemblance Nominalism and the Imperfect Community" and *Resemblance Nominalism: A Solution to the Problem of Universals*.

³⁴ Nelson Goodman, *The Structure of Appearance*, Chapter 5.

Consider two properties which were made famous by Quine: *being a renate* (*being a creature with kidneys*) and *being a cordate* (*being a creature with a heart*). It seems to be the case that all creatures with kidneys are also creatures with hearts and vice versa. If properties are identified with the natural classes of particulars that instantiate them, *being a renate* and *being a cordate* will be the same property, since each member of the class of renates is a member of the class of cordates and vice versa. Yet *being a renate* and *being a cordate* are distinct properties. The resemblance trope nominalist putatively avoids this difficulty because, even though each renate trope is co-instantiated with a cordate trope (and vice versa), renate tropes are distinct from cordate tropes. Thus, none of the members of the natural class of renate tropes is also a member of the natural class of cordate tropes.³⁵

(IC) arises in the following way. ((IC) is the problem I discussed in § 1.3.) Take a world that contains just three particulars and three different properties *a*, *b*, and *c*. And suppose that the natures of the particulars are adequately represented in the following way:

1. *ab*
2. *bc*
3. *ac*.

Any one particular in this world resembles each other particular, since each particular has something in common with each other particular. This world also contains just three natural classes: {1,2}, {2,3}, and {1,3}. But the resemblance nominalist analyzes natural classes as classes whose members all resemble each other. Thus, for the resemblance nominalist, the class {1,2,3} would also seem to be a natural class, since each member of

³⁵ There is a way for the resemblance nominalist to meet this objection. He can extend his account to include modal scenarios. For instance, if there is some possible world in which a renate is not also a cordate, then the natural class of renates is distinct from the natural class of cordates. Of course, if any types turn out to be co-instantiated in all possible worlds, then the resemblance nominalist is committed to the claim that they are identical.

the class resembles every other member of the class. (1 resembles 2 in that they are both *b*; 1 resembles 3 in that they are both *a*; and 2 resembles 3 in that they are both *c*.) But $\{1,2,3\}$ is not a natural class, nor is it the sort of thing that should be identified with some property, since there is no single characteristic common to each of its members. $\{1,2,3\}$ could be said to be an imperfect community. Resemblance trope nominalism putatively avoids this difficulty because none of the resemblance trope nominalist's properties turn out to be imperfect communities. Take the above world. The resemblance trope nominalist would represent it in the following way:

1. a_1b_1
2. b_2c_1
3. a_2c_2 .

For the resemblance trope nominalist, properties are natural classes of resembling tropes. And this world contains just three of them: $\{a_1, a_2\}$, $\{b_1, b_2\}$, and $\{c_1, c_2\}$.³⁶ $\{a_1, a_2, b_1\}$, however, is not a natural class, and thus not a property, because its members do not each resemble each other. This is because tropes, unlike particulars, seem to have simple natures; as a result, they seem to have only one direction of resemblance. And thus they resemble only other tropes of their own kind. (In the next section, I will argue that this is false.) So a class such as $\{a_1, a_2, b_1\}$ is an imperfect community, but the resemblance trope nominalist does not seem to be compelled to countenance it as a natural class or as a property.

Resemblance trope nominalism's apparent success in avoiding (CD) and (IC) lends some credence to the common belief that resemblance trope nominalism is to be preferred over resemblance nominalism. (This is not to say that resemblance nominalism is without defenders. I refer the reader to the work of Rodriguez-Pereya.) And it is also

³⁶ There are, of course, also natural classes of particulars. But, for the resemblance trope nominalist, particulars form natural classes only if they have resembling tropes.

commonly assumed that any successful defence of resemblance nominalism can, in turn, be employed by the trope nominalist in defending resemblance trope nominalism.

My argument in this chapter is twofold. First, I will argue against Keith Campbell's claim that resemblance trope nominalism avoids (IC). Second, I will argue that Rodriguez-Pereya fails to defend resemblance nominalism from (IC). This is important because, had Rodriguez-Pereya been successful in his defence of resemblance nominalism, his defence might have been available to the resemblance trope nominalist. If I am correct that neither Rodriguez-Pereya nor Campbell successfully defends his nominalism from (IC), then I will have undermined their position against the natural class trope nominalist. Although Rodriguez-Pereya and Campbell are free to claim that natural classes are analyzable *in principle*, they have not yet shown this to be the case. Until they do so, there is some reason to suppose that, in the absence of some such argument, natural classes might be unanalyzable, just as the natural class trope nominalist claims.

2.1 Resemblance Trope Nominalism and (IC)

Natural class trope nominalists say that properties (natural classes or, to use the terminology of Goodman and Rodriguez-Pereya, perfect communities) can be analyzed in terms of classes of resembling tropes. In order to avoid (IC), the resemblance trope nominalist must provide an analysis of resemblance classes according to which each resemblance class is a natural class (perfect community). It is commonly believed that resemblance trope nominalism avoids (IC), even if resemblance nominalism doesn't. The reason for this is that tropes, putatively, have simple natures, whereas particulars have complex natures.

Particulars often have many different properties. Take an ordinary particular such as a sheet of paper. It is white and rectangular. And it has a certain mass. Whatever genuine properties this sheet of paper has, it has them in virtue of the tropes it instantiates.³⁷ This is what gives a particular its complex nature and this is also what grounds a particular's resemblance relations. Particulars are complex, many trope theorists claim, because they are bundles of tropes; and particulars resemble, because they have tropes that resemble. Tropes, however, are not complex; they are not themselves bundles of (higher order) tropes. Campbell says that a trope "is not a union of distinct elements It is a single item, a particularized nature."³⁸ Thus, the problem of the imperfect community arises only

if the members of the [resemblance classes] are *complex*, concrete particulars It is only because the objects have many properties that the imperfect community problem can be generated ... if the members of our similarity circles are *tropes*, the red ones will form one group, the blue a second, and the wooden a third, the metallic a fourth, and so on. There will not be any similarity circles of hybrid members, and it is only hybrid members that allow the construction of similarity circles exhibiting imperfect community. Resemblance theory with tropes does not manufacture the spurious 'properties' that emerge from resemblances among concrete particulars.³⁹

There are many different ways in which any one particular can resemble another particular. One could say that particulars have many different *directions* of resemblance. Perhaps a particular has as many directions of resemblance as it has tropes. But tropes are different. Any trope, given its simple nature, will have but one possible direction of resemblance; and, as a result, it will resemble only other tropes of its own kind. If this is true, then it would seem that Campbell is correct; resemblance theory with tropes does

³⁷ Sometimes properties do not correspond 1:1 to tropes. By using the term 'genuine', I am merely taking into consideration the distinction between sparse and abundant properties.

³⁸ Keith Campbell, *Abstract Particulars*, 20. (See also pp. 56-57)

³⁹ *Ibid.*, 33-34.

not manufacture spurious properties (imperfect communities). I will argue, however, that Campbell (and others) are mistaken. Resemblance trope nominalism is no more successful than resemblance nominalism in avoiding (IC), because tropes can resemble in multiple directions just as ordinary particulars can, even if a trope does not have *as many* directions of resemblance as any given ordinary particular does.

In order to make my point, I will draw attention to a parallelism between particulars and tropes. Consider again the sheet of paper and its properties. It is white, rectangular, and has a certain mass. Now take a red trope. It also has many different properties. For instance, it is red; it has a certain hue; and it has a certain saturation. But these aren't its only properties. Any red trope is monadic; it has a place in time and space; and it is an instance of some determinable type of red. Tropes, just like ordinary particulars, have a multiplicity of properties.

In ordinary particulars, properties correspond (roughly) to tropes. And tropes ground resemblance—perhaps a particular resembles in as many directions as it has tropes. So ultimately, for particulars, properties seem to correspond to directions of resemblance. This is why a resemblance nominalism runs afoul of (IC); particulars have multiple directions of resemblance. But tropes also have many different properties. If we applied the same reasoning to tropes as we did to particulars, we would be led to believe that tropes have multiple directions of resemblance just as particulars do. Is it not true, for instance, that a red trope could resemble a blue trope in terms of its saturation and that it could resemble a mass trope in terms of its monadicness? If there is, indeed, such a parallel structure between particulars and tropes, then it is no longer clear that resemblance trope nominalism avoids (IC). There is, for instance, no guarantee that each

resemblance class of tropes is a perfect community, since the resemblance relation is indiscriminate with respect to direction of resemblance. A resemblance class ordered around a paradigm red trope could have some member tropes that resemble it only in the monadicness-direction and other member tropes that resemble it only in the saturation-direction.

The resemblance trope nominalist is likely to respond to this objection by saying that it overlooks the fact that tropes are not structurally complex in the way that particulars are; particulars are bundles of tropes and tropes are not themselves bundles of (higher order) tropes. And whereas a particular's properties correspond to tropes, a trope's properties do not. Campbell says

let us grant that red, orange, yellow, and brown are *warm* colours. Then a particular instance of orange will be a case of warm colour, as well as a case of orange. But this does not imply that it is a union of two features [or tropes], warmth and orangehood. To recognize the case of orange as warm is not to find a new feature in it, but to treat it more abstractly, less specifically, than in recognizing it as a case of orange.⁴⁰

But even if it is granted that tropes do not themselves have tropes, it's not clear to me how the mere difference in structural complexity between particulars and tropes, if there is any,⁴¹ helps the resemblance trope nominalist avoid (IC). The only way the structural difference between particulars and tropes can help the resemblance trope nominalist avoid (IC) is if it makes a difference in terms of what resemblance relations particulars and tropes enter into. And the only way, as far as I can tell, a difference in structural

⁴⁰ Ibid., 56-57.

⁴¹ Here the resemblance trope nominalist owes us an account of why a multiplicity of properties in particular entails a multiplicity of tropes and why a multiplicity of properties in a trope does not entail a multiplicity of (higher order) tropes. Without such an account, the trope nominalist's assertion seems arbitrary. Campbell seems to offer the beginnings of such an account. He claims that the characteristics of a trope (its being a certain hue or saturation, its being a case of something, or its being a particular) are "incapable of distinct and independent existence." (Ibid., 57.) Presumably this is in contrast to the characteristics of particulars which, putatively, *are* capable of distinct and independent existence.

complexity makes a difference in terms of resemblance is if the resemblance trope nominalist posits some brute facts.

Suppose it is a brute fact what resemblance relations a trope enters into. And suppose, furthermore, it is a brute fact about tropes that they resemble in only one direction; red tropes only resemble other red (or coloured) tropes; length tropes only resemble other length tropes; and mass tropes only resemble other mass tropes. Given these brute facts, resemblance classes of tropes would all be perfect communities; the member tropes in each resemblance class would all be of a certain kind and (IC) would not be a problem. ((IC) would, however, still be a problem for the resemblance nominalist, because particulars would still have multiple directions of resemblance. Only tropes are restricted in their directions of resemblance not particulars. Particulars, after all, are bundles of tropes and, as a result, can have as many directions of resemblance as they have tropes—there is no metaphysical principle according to which all the tropes in any given bundle must all resemble in the *same* direction.) In this way the structural difference between particulars and tropes, together with certain brute facts, would make a difference in terms of resemblance.

This account, however, comes with its own problems. First, is the structural difference between particulars and tropes a merely arbitrary matter; are there independent reasons for maintaining this? Campbell suggests that the characteristics of tropes are incapable of distinct and independent existence.⁴² Does this mean that the characteristics of particulars (which are tropes) *are* capable of independent existence? If so, we require an argument, because it's not obvious that tropes can exist independently. Second, why are brutal resemblance facts acceptable for the resemblance trope nominalist at the level

⁴² See the previous note.

of tropes when they are not acceptable at the level of particulars? Austere nominalists claim it is a brute fact about particulars which other particulars they resemble. Is resemblance trope nominalism merely a disguised version of austere nominalism? If not, why are these brute facts acceptable for the resemblance trope nominalist the second time around when they weren't the first time around? Finally, isn't it just false that tropes have only one direction of resemblance? Some tropes resemble in that they are monadic, others because they are similarly located, and still others because (if they are colour tropes) they have a similar hue or saturation. As long as it cannot reasonably be denied that tropes have multiple directions of resemblance just as particulars do, (IC) is just a problematic for the resemblance trope nominalist as it is for the resemblance nominalist.

2.2 Goodman's Solution to (IC)

It is sometimes thought that whatever account a resemblance nominalist provides in order to meet (IC) can be employed, perhaps to greater success, by the resemblance trope nominalist. In the rest of this chapter I will examine a recent attempt by a resemblance nominalist, Gonzalo Rodriguez-Pereya, to meet (IC). I argue that Rodriguez-Pereya's bid to meet (IC) fails.

Rodriguez-Pereya's defence of resemblance nominalism lies within a tradition going back through Rudolph Carnap and Nelson Goodman. In *Der Logische Aufbau der Welt*, Carnap attempts, among other things, to "construct" properties (natural classes) using only some basic elements (elementary experiences) and a primitive relation, one that is, broadly speaking, the relation of resemblance.⁴³ Goodman, who is perhaps responsible

⁴³ Rudolf Carnap, *The Logical Structure of the World*, §§ 67-83.

for coining the slogans ‘the companionship difficulty’ and ‘the difficulty of the of imperfect community’, argues, in *The Structure of Appearance*, that Carnap’s system faces two serious problems: (CD) and (IC). Goodman proposes a modification to Carnap’s system, one that, he says, solves (IC). In this section, I will briefly recount Carnap’s resemblance account of properties and Goodman’s modification of Carnap’s system. I will also present an argument, one given by Rodriguez-Pereya, to the effect that Goodman’s modification of Carnap’s system also fails.

Although Carnap’s *Aufbau* isn’t explicitly a defence of resemblance nominalism, his account of properties is certainly one that a resemblance nominalist could embrace, since it does not require one to countenance universals and it takes the relation of resemblance as a primitive. It matters not, for my purposes, what Carnap’s basic elements are. I will speak of them as particulars.

Carnap proposes an analysis of properties on which properties are certain classes of particulars. Every class that meets the following two conditions is a property: (i) every two members of the class stand in the resemblance relation to each other and (ii) the class is the largest possible class of particulars such that each particular in the class resembles every other particular in the class, i.e. the classes are closed under resemblance.⁴⁴ (This is not Carnap’s exact formulation. His account involves two resemblance relations: one he calls ‘part identity’, and one he calls ‘part similarity’. These two resemblance relations correspond to determinate and determinable properties: the relation of part identity holds between particulars that, for instance, both have some determinate shade of red; the relation of part similarity holds between particulars that, for instance, are different shades of red—one might be crimson red, the other might be ruby red.

⁴⁴ Carnap, *The Logical Structure of the World*, 112, 117.

Although my formulation of Carnap's conditions are not exactly his own, it sufficiently captures the content of Carnap's conditions.) Suppose that one was given a complete pair-list, i.e. a complete list of every pair of resembling particulars there are. (That there isn't actually such a list need not deter us. We can suppose that there is a function from particulars to their resemblance pairs:

$$f(x) = \langle x,w \rangle, \langle x,y \rangle, \langle x,z \rangle, \dots \text{ (where the lowercase variables range over particulars).}$$

Armed with such a function, a complete pair-list would be possible.) And suppose that there is a world α that contains just six particulars and three colour properties (*blue*, *green*, and *red*), as indicated in the following:

1. *br* 2. *b* 3. *bg* 4. *g* 5. *r* 6. *bgr*.⁴⁵

The preceding function would give us the following pair-list for these particulars:

$\langle 1,1 \rangle$	$\langle 2,2 \rangle$	$\langle 3,3 \rangle$	$\langle 4,4 \rangle$	$\langle 5,5 \rangle$	$\langle 6,6 \rangle$
$\langle 1,2 \rangle$	$\langle 2,3 \rangle$	$\langle 3,4 \rangle$	$\langle 4,6 \rangle$	$\langle 5,6 \rangle$	
$\langle 1,3 \rangle$	$\langle 2,6 \rangle$	$\langle 3,6 \rangle$			
$\langle 1,5 \rangle$					
$\langle 1,6 \rangle$					

(I have, for the sake of convenience, not listed all the ordered pairs. For instance, $\langle 2,1 \rangle$ does not appear in the second column. This is because the relation of resemblance is symmetrical. If $\langle x,y \rangle$ obtains, so does $\langle y,x \rangle$. The same holds true for the lists below.)

From this pair-list, given Carnap's restrictions on properties, properties could be constructed. Take the class $\{1,2,3,6\}$; $\{1,2,3,6\}$ satisfies Carnap's requirements, because each member of the class is paired with each other member of the class on the pair-list and there is no other particular, namely 4 or 5, that is paired with each member of the class. $\{1,2,3,6\}$ is the class corresponding to the property *blue*. Take another class

⁴⁵ Here I follow Goodman's exposition of Carnap. (See Goodman, *The Structure of Appearance*, 120-121.)

{1,2,3,5,6}. {1,2,3,5,6} does not satisfy Carnap's requirements, because the pairs <2,5> and <3,5> are not given by the function—5 doesn't resemble each other member of the class.

However, Carnap's analysis of properties runs afoul of both (CD) and (IC). Consider another world β that contains just five particulars and the same three properties:

1. *br* 2. *b* 3. *bg* 4. *g* 5. *bgr*.

Its pair-list would be the following:

<1,1>	<2,2>	<3,3>	<4,4>	<5,5>
<1,2>	<2,3>	<3,4>	<4,5>	
<1,3>	<2,5>	<3,5>		
<1,5>				

Notice that in this world every particular that instantiates *r* also instantiates *b*. Employing Carnap's criteria for properties we see that there is, among other properties, the class {1,2,3,5}. {1,2,3,5} corresponds to the property *blue*. In this world there should also be a class corresponding to the property *red*; this class would be {1,5}. However, Carnap's criteria for properties does not admit {1,5} as a property. {1,5} does not meet condition (ii), because there are two other particulars that are not members of the class that resemble every member of the class: namely, 2 and 3. So Carnap's analysis of properties cannot countenance the property *red* in β . Whenever one property is always co-instantiated with some other property, Carnap's analysis of properties will fail; this is the companionship difficulty (CD). Carnap is aware of this difficulty for his account; he opts to meet this difficulty by assuming that these unfavourable conditions are never, in fact, fulfilled.⁴⁶ Carnap's assumption is problematic for two reasons: making such an

⁴⁶ See Carnap, *The Logical Structure of the World*, (§ 70) 113.

extrasystematic assumption detracts from the elegance of his theory, and the assumption seems to contradict what seems to be a real possibility.⁴⁷

Carnap's analysis of properties also runs afoul of (IC). Consider yet another world γ that contains just six particulars and the same three properties:

1. *bg* 2. *rg* 3. *br* 4. *r* 5. *b* 6. *g*.

Its pair-list would be the following:

<1,1>	<2,2>	<3,3>	<4,4>	<5,5>	<6,6>
<1,2>	<2,3>	<3,4>			
<1,3>	<2,4>	<3,5>			
<1,5>	<2,6>				
<1,6>					

In this world there should be just three properties: $\{1,3,5\}$, $\{1,2,6\}$, and $\{2,3,4\}$.

However, there is another class of particulars that meets Carnap's conditions for properties: namely, $\{1,2,3\}$. The pairs $\langle 1,2 \rangle$, $\langle 2,3 \rangle$, and $\langle 1,3 \rangle$ all appear on the pair-list; thus $\{1,2,3\}$ satisfies condition (i). And there are no other particulars that are not members of $\{1,2,3\}$ that are paired with each member of $\{1,2,3\}$; for instance, 4 isn't paired with 1, 5 isn't paired with 2, and 6 isn't paired with 3. So $\{1,2,3\}$ also meets condition (ii). And thus it is a property. But what property do all of the members of $\{1,2,3\}$ have in common? This is the difficulty of the imperfect community (IC). What is required of an analysis like Carnap's is some further condition that rules out imperfect communities such as $\{1,2,3\}$.

Goodman has offered a modification of Carnap's theory that, purportedly, does not run afoul of (IC).⁴⁸ (Incidentally, Goodman does not claim to have met (CD).) Carnap's primitive relation, with which he analyses properties, obtains only between single

⁴⁷ The latter point is made by Goodman. (See Goodman, *The Structure of Appearance*, 123.)

⁴⁸ Goodman, *The Structure of Appearance*, 167-169.

particulars, i.e. the primitive relation does not hold between a single particular on one side and a pair or collection of particulars on the other side, e.g. $xR\langle y,z\rangle$. Goodman suggests two modifications to Carnap's theory. The first involves positing a primitive relation, call it ' L ', that, unlike Carnap's, can obtain between a single particular on one side and a mereological sum on the other, e.g. $xL(y+z)$. The second involves taking properties to be mereological sums of particulars rather than classes of particulars—although Goodman suggests that his account could be made to work for classes of particulars as well as mereological sums of particulars.⁴⁹ A property, says Goodman, is “an [mereological sum] of which every two discrete parts form an L -pair.”⁵⁰

These modifications make Goodman's analysis of properties extensionally correct. Consider again the world γ . On Carnap's analysis of properties, $\{1,2,3\}$ turned out to be a property. But, on Goodman's account, the mereological sum $1+2+3$ is not a property. Goodman requires that the L -relation obtain between every two discrete parts of a property. Thus, although $1L2$, $2L3$, and $1L3$ all obtain in γ , $1L(2+3)$, $2L(1+3)$, and $3L(1+2)$ do not obtain in γ . Take, for instance, $1L(2+3)$. L obtains between 2 and 3 (because 2 and 3 are both red), and the mereological sum $2+3$ is a discrete part of the mereological sum $1+2+3$. But L does not obtain between 1 and $2+3$. Thus, $1+2+3$ is not a property. So Goodman's analysis of properties seems to be extensionally correct.

There is, however, one question Goodman must address before his solution to (IC) is available to the resemblance nominalist. If Goodman's solution to (IC) is to be a

⁴⁹ If Goodman's solution to (IC) were applied to classes, the view would look something like the following. (Here I follow Rodriguez-Pereya's exposition in “Resemblance Nominalism and the Imperfect Community,” § 3.2.) Instead of a dyadic resemblance relation L obtaining between particulars and sums of particulars, one could posit a dyadic resemblance relation L^* obtaining between each distinct pair of subclasses of a property, e.g. $\{x\}L^*\{y,z\}$.

⁵⁰ Goodman, *The Structure of Appearance*, 168.

resemblance nominalist's solution to (IC), the primitive relation L must be a relation of resemblance. But, if L is a resemblance relation, then it is not clear that Goodman's account avoids (IC) in all cases. Consider, again, world γ . Goodman's analysis of properties avoids (IC) for world γ because L does not obtain between 1 and $2 + 3$. But Goodman is not explicit about why $1L(2 + 3)$ does not obtain in γ . If 2 is green and 2 is part of $2 + 3$, is it not the case that $2 + 3$ is green because part of $2 + 3$ is green? And, if this is the case, why does L , a relation of resemblance, not obtain between 1 and $2 + 3$, since both 1 and $2 + 3$ are green? Or, alternatively, one could argue that 1 resembles $2 + 3$, because both 1 and $2 + 3$ have green parts; 1 has an improper part that is green, and $2 + 3$ has a proper part that is green. If this is correct, then it seems that Goodman has not avoided (IC) after all.⁵¹

Rodriguez-Pereya raises another objection to Goodman's mereological solution to (IC), although Rodriguez-Pereya's objection to Goodman's mereological solution to (IC) rests on, what seems to be, a false premise. Rodriguez-Pereya says this:

Goodman calls ' L ' a [resemblance] relation: but what does it mean to say a [resembles] $b + c$? Goodman never says. But he needs to. For if ' L ' is to express a [resemblance] relation then presumably any two entities to which it applies must have some property in common. But since [Goodman's theory] requires that some particulars stand in L to some *sums* of such particulars, sums must be given some properties to share with such particulars, and Goodman gives no indication of what those properties must be.... Yet it is clear what those properties of sums must be: the properties shared by the particulars which are their parts. Thus if

⁵¹ Goodman could respond to this objection by stating that L obtains between two particulars x and y only if x and y are *completely* green. $(2+3)$ is only partly green, therefore $1L(2+3)$ would not obtain. But, if Goodman were to respond in this way, he would have to maintain that much of what passes as true in everyday communication is, in fact, false. For instance, children are taught that trees are green and that dogs are brown. But trees aren't completely green and (brown) dogs aren't completely brown; that is, few things are perfectly homogenous in their colour. Perhaps Goodman could abide this consequence, claiming that his L -relation is consistent with the way the learned should speak, even if it is not consistent with the way the vulgar, in fact, do speak.

a, *b*, and *c* have *F* and so are parts of the *F*-[property], *b* + *c* must have *F* too in order to resemble *a*, i.e. bear *L* to *a*.⁵²

While it is true that, in order for Goodman's solution to be successful, *F*-particulars must be able to resemble sums of other *F*-particulars, Goodman does not, however, require that the *sums* of *F*-particulars themselves have *F*, as Rodriguez-Pereya claims. If Goodman did require this, then his solution would indeed be problematic for the reason Rodriguez-Pereya gives, since a sum of *F*-particulars is not necessarily itself *F*—as would be the case if *F* is *having a mass of 1 kilogram*. All the resemblance nominalist requires for his Goodman-style analysis of properties is that *F*-particulars resemble sums of *F*-particulars *simpliciter*. (Indeed, if the resemblance relation was specified in one way as opposed to another, the nominalist would be in danger of covertly assuming the natural classes he is attempting to analyze. The nominalist's analysis of properties would then look something like this: a particular *x* has some property *F* if and only if *x* is a member of some resemblance class of particulars *y*, where each member of *y* *F*-resembles every other member of *y*—this is the sort of scenario I discussed in § 1.3. The Goodman-style nominalist can specify *L* in terms of degree of resemblance, but he cannot specify *L* in terms of direction of resemblance.) The Goodman-style resemblance nominalist, however, *does* require this: no non-*F*-particulars and no sum of non-*F*-particulars resembles each discrete part of the property. Once this is recognized, it becomes apparent that the Goodman-style resemblance nominalist cannot avoid (IC). Take the property *being 1 kilogram*. According to the resemblance nominalist, the mereological sum of all particulars having this property is such that each discrete part of it resembles each other discrete part of it and no other particular resembles each discrete part of it. In

⁵² Gonzalo Rodriguez-Pereya, "Resemblance Nominalism and the Imperfect Community," 970.

the case of the mereological sum corresponding to the property *being 1 kilogram* all of the parts of the mereological sum resemble, at least, in terms of having some mass or other. But there is another mereological sum, call it 'Addy' (short for 'addition'), that has as its parts all of the particulars having the property *being 1 kilogram* and one particular having the property *being 2 kilograms*. Addy is also such that each of its discrete parts resembles every other of its discrete parts. But Addy is not a property, because not all of its parts have some property in common. So a Goodman-style resemblance nominalism does not avoid (IC) after all.⁵³

Some slightly different problems arise for a Goodman-style analysis of properties when properties are analyzed in terms of *classes* of particulars rather than mereological sums of particulars. On the classial-analysis, properties are analyzed in terms of resemblance relations between classes of particulars instead of resemblance relations between particulars themselves. This consequence is, in itself, liable to strike some resemblance nominalists as objectionable. Why should the properties of particulars rest upon resemblance relations that hold between the classes that have the particulars as members?⁵⁴ But a more substantive objection, perhaps, to a Goodman-style analysis of properties when it is applied to classes is this: it still fails to avoid (IC).

Classes have many different sorts of properties; and, if they resemble, it can only be in terms of the properties they have and not in terms of the properties had by their members, because classes don't share many properties with their members. It seems

⁵³ A Goodman-style resemblance nominalist could, in the hope of avoiding (IC), build *L* in such a way that *L* obtains only between the right sorts of particulars and sums of particulars. After all, *L* is a primitive within the theory and, as such, the resemblance nominalist is free to hold whatever sort of primitive he wishes. However, modifying *L* in this way is problematic; modified-*L* no longer resembles—pardon the pun—the resemblance relation we have a pretheoretical grasp of.

⁵⁴ Rodriguez-Pereya makes this point in "Resemblance Nominalism and the Imperfect Community," 971-972.

dubious that properties of *particulars* could be analyzed in terms of a dyadic resemblance relation L^* holding between classes of particulars. In order for this to be possible, the properties of classes (*having a finite number of members, being a singleton* to name just a few) would have to have a parallel distribution with the properties of their members. For instance, some property F would have to be a property of all and only the classes whose members all had some property G .⁵⁵ Are there any such properties? Perhaps there are. Rodriguez-Pereya suggests that, whenever the members of a class x all have a common property, x has a unique derivative property as a result. The Goodman-style resemblance nominalist could maintain that the L^* relation operates only on these derivative properties. But then his analysis of properties of particulars seems to be circular. These derivative properties of classes are dependent upon their members having properties in common. But it was precisely to analyze the properties of ordinary particulars that the Goodman-style analysis of properties was invoked in the first place.

2.3 Rodriguez-Pereya's Solution to (IC)

Rodriguez-Pereya's analysis of properties is similar to the classical version of Goodman's analysis of properties in that Rodriguez-Pereya also relies upon a primitive resemblance relation between classes. The difference between Rodriguez-Pereya's analysis and Goodman's analysis is that Rodriguez-Pereya's primitive resemblance relation does not obtain between classes that have more than two members. Using only this resemblance relation between doubletons (classes that have two members), Rodriguez-Pereya attempts

⁵⁵ Rodriguez-Pereya suggests that, whenever the members of a class all have a common property, the class has a unique derivative property as a result. Given these derivative properties, the Goodman-style resemblance nominalist could maintain that the L^* relation operates only on these properties.

a version of resemblance nominalism that avoids (IC).⁵⁶ In this section I will present Rodriguez-Pereya's solution to (IC) and some objections to it.

Rodriguez-Pereya's solution to (IC) is motivated by the idea that there is something special about doubletons whose members have properties in common. Consider the following particulars and distribution of the two properties *red* and *green*:

1. *r* 2. *r* 3. *r* 4. *g* 5. *g* 6. *g*.

Rodriguez-Pereya says

There is a sense in which the [doubletons] {1,2} and {1,3} resemble each other, but they do not resemble the [doubleton] {4,5}. For both {1,2} and {1,3} are [doubletons] of red particulars, while this is not true of {4,5}. Similarly, [doubletons] {{1,2},{2,3}} and {{1,2},{1,3}} resemble each other but they do not resemble [doubleton] {{1,2},{4,5}}, since {{1,2},{2,3}} and {{1,2},{1,3}} are [doubletons] of red particulars, which is not true of {{1,2},{4,5}}. It is clear that similar resemblance relations can hold, or fail to hold, between [doubletons of doubletons], [doubletons of doubletons of doubletons], and so on.⁵⁷

The basic idea is this: whenever two particulars have a property in common, their doubleton has a derivative property because of it. This notion could be formalized in the following way: call it the Derived Property Principle (DPP).

(DPP) Any doubleton x has some property P^n if and only if its members have a property P^{n-1} in common.⁵⁸

⁵⁶ Rodriguez-Pereya, *Resemblance Nominalism: A Solution to the Problem of Universals*, Chapter 9. (An earlier version can be found in Rodriguez-Pereya, "Resemblance Nominalism and the Imperfect Community.")

⁵⁷ *Ibid.*, 162.

⁵⁸ This seems to be what Rodriguez-Pereya has in mind with (what he calls) 'result (1)'. He also seems to think that the function below entails it. He says that the function "makes the properties of [doubletons] depend on the properties of their members." (*Ibid.*, 165 (emphasis mine).) But this isn't exactly the case. All the function does is map some entities, if there are any, onto some other entities, if there are any. If doubletons didn't have any derivative properties, then the function's value for any doubleton would be \emptyset . It needs to be a metaphysical truth that doubletons have derived properties in the way he describes. Thus, (DDP) isn't entailed by the function. (DDP) ensures that, if there are particulars that have properties in common, their doubletons will have derived properties and the function's value for these doubletons will not be \emptyset .

(DDP) says that, no matter what doubleton we choose, if it has some property P^n , then its bases will all have the property P^0 . (The bases of any doubleton are its ancestral particulars, e.g. the bases of the first-order doubleton $\{x,y\}$ are particulars x and y ; likewise, the bases of the second-order doubleton $\{\{x,y\},\{x,z\}\}$ are the particulars x, y , and z .) To make clear how derivative properties of doubletons relate to their bases, Rodriguez-Pereya introduces a function, one whose arguments are particulars and doubletons and whose values are the properties of those particulars and doubletons. According to this function, if the argument is a particular, the function maps it onto its set of properties, and if the argument is a doubleton, the function maps it onto its set of properties.⁵⁹

$$f(x) = \begin{cases} \{P_1^0, \dots, P_i^0\} & \text{if and only if } x \text{ is a } \textit{particular} \text{ and the members of } \{P_1^0, \dots, P_i^0\} \\ & \text{are all and only the sparse properties of } x. \\ \{P_1^{n+1}, \dots, P_i^{n+1}\} & \text{if and only if } x = \{y, z\}, \text{ where } y \neq z, \text{ and } f(y) \cap f(z) = \\ & \{P_1^n, \dots, P_i^n\}. \\ \emptyset & \text{otherwise} \end{cases}$$

(‘ P ’ ranges over properties. ‘ x ’, ‘ y ’, and ‘ z ’ range over particulars and doubletons. ‘ P_1^0 ’ refers to a property had by some particular. ‘ P_1^{n+1} ’ refers to a derivative property (a property a doubleton has if its members have a property in common) had by some doubleton. So, if some doubleton or particular x has a property, then $f(x) \neq \emptyset$. And, if two doubletons or particulars x and y share a property, then $f(x) \cap f(y) \neq \emptyset$. If two particulars x and y have the property F^0 in common, then their doubleton has the property F^1 . If two doubletons have the property F^1 in common, then their doubleton has the property F^2 .)⁶⁰

⁵⁹ Ibid., 164-165.

⁶⁰ Although this function helps to clarify some matters, it is also somewhat misleading. Take two red particulars and their doubleton. Each red particular has the property *being a red particular*, and their

Given (DDP) and the function outlined above, Rodriguez-Pereya attempts a solution to (IC). For the resemblance nominalist, an analysis of perfect communities (natural classes) must proceed in terms of a resemblance relation. Rodriguez-Pereya introduces the following resemblance relation R^* :

$$R^*xy \text{ if and only if } f(x) \cap f(y) \neq \emptyset.$$

That is, two entities x and y resemble if and only if they have a common property. The reason Carnap's and Goodman's analyses of properties failed is that, on their analyses, some classes that satisfy the conditions for perfect communities are imperfect communities; an adequate analysis of perfect communities must, at the very least, be such that imperfect communities do not meet the conditions of perfect communities. So, proceeding with his resemblance relation, Rodriguez-Pereya defines perfect communities in the following way:

$$\alpha^0 \text{ is a perfect community} =_{\text{def}} \forall n, \forall x, \forall y (x \in \alpha^n \ \& \ y \in \alpha^n \supset R^*xy)$$

(where α^0 is an arbitrary finite class of particulars). In other words, " α^0 is a perfect community if and only if, for every $n \geq 0$, R^* obtains between every two members of α^n , that is, if and only if every two members of α^n share some property."⁶¹

We can see that Rodriguez-Pereya's definition of perfect communities is extensionally correct, since no imperfect communities satisfy the definiens. Suppose that every member of α^0 has a property in common, say F^0 . Every doubleton-subclass of α^0 will have a common derivative property, namely F^1 . And every n th-order doubleton that

doubleton has the property *being a doubleton of red particulars*. According to the notation introduced by Rodriguez-Pereya above, the red particulars have the property R^0 and the doubleton has the property R^1 . And the doubleton of two R^1 -doubletons has the property R^2 . Taken together, these properties would form the following set: $\{R^0, R^1, R^2\}$. From the notation, $\{R^0, R^1, R^2\}$ seems to be a set of properties that are all of the same kind. But this isn't necessarily the case; it's not obvious that *being a red particular* and *being a doubleton of red particulars* are two properties of the same kind.

⁶¹ Ibid., 978.

has only members of α^0 as its bases will have a common property F^n . And, whenever two particulars or two doubletons have a property in common, R^* obtains between them. So α^0 forms a perfect community whenever all of its members have a property in common. Now suppose that not all of the members of α^0 have a property in common. In this case, α^0 will not satisfy the definiens of a perfect community, because there will be some n such that no n th-order doubletons (that have only the members of α^0 as bases) will have a derivative property in common. And so α^0 will not be a perfect community—exactly what we would expect, given that not all of the members of α^0 have a property in common.

So Rodriguez-Pereya seems to have given us a definition of perfect communities, one that proceeds in terms of a resemblance relation, that is extensionally correct. However, his claim that he has provided a resemblance nominalist analysis of properties that avoids (IC) is problematic.

One problem for Rodriguez-Pereya's analysis of properties is that it seems to be circular. Consider what it means for two particulars to have a common property. Two particulars have a common property only if they are both members of a perfect community. A perfect community is a class of particulars such that R^* holds between every two members of the class and between every two n th-order doubletons that have the members of the class as bases. And how is R^* analyzed? R^* obtains between any two entities only if the intersection of their respective property-functions is not empty (R^*xy if and only if $f(x) \cap f(y) \neq \emptyset$); that is, if they have a common property. But now the analysis has turned back onto its tail. Two particulars have a common property only if they are both members of a perfect community, *et cetera*.

But perhaps ‘ R^*xy if and only if $f(x) \cap f(y) \neq \emptyset$ ’ is not meant to be *an analysis* of the relation R^* . Perhaps ‘ R^*xy if and only if $f(x) \cap f(y) \neq \emptyset$ ’ is only meant to indicate that the R^* relation parallels our pretheoretic concept of property-sharing; in every case in which two objects share a property, the R^* relation holds between them, and vice versa. If this is all that is meant by ‘ R^*xy if and only if $f(x) \cap f(y) \neq \emptyset$ ’, then Rodriguez-Pereya’s analysis of properties isn’t circular. However, problems remain.

Suppose R^* is a primitive and unanalyzable relation, a claim that is consistent with the usual resemblance nominalist agenda.⁶² And suppose, furthermore, that R^* is the resemblance relation we all have a pretheoretic grasp of. Given these claims, Rodriguez-Pereya’s analysis of properties no longer successfully avoids (IC). Even though his analysis is a novel development of the venerable resemblance nominalist analysis of properties—to my knowledge no previous resemblance nominalist has applied the resemblance relation to doubletons of particulars and doubletons of doubletons of particulars, etc.—Rodriguez-Pereya’s analysis runs afoul of (IC) for the same reason previous defences of resemblance nominalism have: imperfect communities satisfy the conditions for perfect communities (properties). Whenever R^* obtains between n -order doubletons, it is due to the fact that their members (lower order doubletons) have a common derivative property. And here, if we are to respect the fact that R^* is not to be analyzed in terms of shared properties, we must remember that whenever doubletons (of any order) have a common derivative property it is due to the fact that R^* obtains between their lower order member-doubletons. So R^* ’s obtaining at higher levels is only

⁶² Rodriguez-Pereya does give some indication that this is his intention. He says, “resemblance between [doubletons], as well as between particulars, is primitive and anterior to properties, and that in general what makes F^0 -particulars have the property F^0 is that they resemble each other, that their [doubletons] resemble each other, that the [doubletons] of their [doubletons] resemble each other, and so on.” (Ibid., 171-172.)

due to the fact that R^* obtains at lower levels and, ultimately, at the level of ordinary particulars. In this, Rodriguez-Pereya's analysis of properties is no different than other resemblance nominalist analyses of properties; his analysis of properties rests upon the extension of the resemblance relation at the level of ordinary particulars. And this is why his analysis of properties runs afoul of (IC) just as other resemblance nominalist analyses of properties do. The resemblance relation we have a pretheoretic grasp of is indiscriminate between directions of resemblance; take a class of particulars in which each member of the class resembles every other member of the class. It might be a perfect community, a class in which the members of the class all have a common property, or it might be an imperfect community, a class in which there is no property common to all the members. And since R^* can obtain between every two members of an imperfect community, R^* can obtain between every doubleton of members of an imperfect community, and, furthermore, between every doubleton of doubleton of members of an imperfect community. Thus, imperfect communities satisfy Rodriguez-Pereya's analysis of properties.

Neither does it help Rodriguez-Pereya to claim that properties are classes of particulars such that each member of the class x -direction-resembles every other member of the class—Rodriguez-Pereya is free to specify the primitive in his theory in whatever way he wishes. This sort of analysis of properties would guarantee that, for any α^0 , if each of its members x -direction-resembles every other member of the class, α^0 is a perfect community. But now Rodriguez-Pereya's analysis seems much like the realist's analysis. Rodriguez-Pereya's analysis would involve as many unique resemblance relations as there are perfect communities, since every distinct perfect community would

require a distinct resemblance relation for its analysis. Realists posit a distinct universal for each perfect community; Rodriguez-Pereya would be positing a distinct resemblance relation for each perfect community. Perhaps this sort of analysis is not yet a realist analysis of properties. Even so, Rodriguez-Pereya would be hardpressed to show how the formal characteristics of his resemblance relations differ from the realists universals. Russell's wellknown criticism to the effect that resemblance is itself a universal would, if sound, imply that Rodriguez-Pereya's multiplicity of resemblance relations is, in fact, a multiplicity of universals.

It should also be pointed out that on this sort of multiple-resemblance analysis of properties Rodriguez-Pereya's stipulations regarding doubletons of perfect community members (and doubletons of their doubletons) are superfluous. Rodriguez-Pereya's multiple-resemblance analysis already forms perfect communities at the level of particulars. The condition upon perfect communities that doubletons of their members (and doubletons of their doubletons) resemble is no longer needed to prevent imperfect communities from satisfying the conditions of the analysis. Furthermore, a resemblance relation modified in the above way is not even compatible with Rodriguez-Pereya's pronouncements regarding the doubletons of perfect community members. If every member of a class *x*-direction-resembles every other member of the class, it will not be the case that the doubletons of the members of the class (and doubletons of their doubletons) also *x*-direction-resemble each other. For instance, it could be the case that every member of some class of particulars *redness*-direction-resemble each other member of the class, but it wouldn't be the case that their *doubletons* would *redness*-direction-resemble each other; doubletons (sets), after all, aren't coloured.

So, if Rodriguez-Pereya's R* relation is the resemblance relation we have a pretheoretic grasp of, he doesn't successfully avoid (IC). If he modifies R* so that his analysis avoids (IC), he seems to depart from the standard resemblance nominalist analysis of properties to something closer to realism.⁶³

⁶³ David Manley has commented on Rodriguez-Pereya's analysis of properties. He says that, although Rodriguez-Pereya seems to have met (IC), "it is debatable (and, I think, doubtful) whether [Rodriguez-Pereya's resemblance relation] has a good claim to being a legitimate extension of the commonsense notion of resemblance." (See David Manley, "Properties and Resemblance Classes," 80.) Manley isn't much more forthcoming than this, but perhaps he has something like the above criticism in mind.

Chapter 3: Natural Class Trope Nominalism and Wolterstorff's Objection

If the arguments of the previous two chapters are sound, the natural class trope nominalist is free to take natural classes to be unanalyzable, because neither the Armstrongian realist nor the resemblance trope nominalist can object to the natural class trope nominalist's taking natural classes to be unanalyzable, given the fact that Armstrongian realists and resemblance trope nominalists might themselves be committed to, at very least, *some* unanalyzable natural classes. But maybe the arguments of the previous chapters have shown more than that the natural class trope nominalist is merely free to take natural classes to be unanalyzable—a suggestion that negatively characterizes the natural class trope nominalist's position. Perhaps they have shown that, when conceptual analysis is taken towards its outer limits, natural classes prove to be unanalyzable, giving us good warrant to construct a comprehensive metaphysics upon the premise that natural classes are unanalyzable. At the very least, the previous chapters lend some plausibility to the claim that neither realists nor resemblance trope nominalists have a *better* account of natural classes and class unity than the natural class trope nominalist does. So the natural class trope nominalist can take natural classes to be unanalyzable.

As a comprehensive metaphysics, however, natural class trope nominalism must also say something about types. Traditionally, natural class trope nominalists have identified types with natural classes. They say that types of ordinary particulars (e.g. beachballs, doghouses, and bald eagles) are just natural classes of particulars whose members each have a trope that is of a certain type. And to be a trope of a certain type is just for it to be a member of some natural class of tropes, where a natural class of tropes is unanalyzable. This account of types has been disputed. The claim that types just are natural classes is,

however, an essential claim of natural class trope nominalism; if the natural class trope nominalist cannot meet the objections that have been raised against the view that types just are natural classes, natural class trope nominalism falls.

In the remaining chapters I will mount a defence natural class trope nominalism from an objection that has been raised by Nicolas Wolterstorff against the natural class trope nominalist's claim that types just are natural classes. I am not the only philosopher to mount a defence of this part of natural class trope nominalism; Douglas Ehring has done the same.⁶⁴ Ehring combines his defence of natural class trope nominalism with a commitment to actualism. Ehring's version of natural class trope nominalism could, however, be held by a possibilist. As far as I can tell, Ehring succeeds in defending natural class trope nominalism from Wolterstorff's objection. The downside to Ehring's version of natural class trope nominalism is that it commits him to counterpart theory—a theory that many philosophers find objectionable. I will defend a variation of Ehring's version of natural class trope nominalism—thus, my defence of natural class trope nominalism is a 'new' one—that avoids commitment to counterpart theory. My version of natural class trope nominalism will also be more attractive to the possibilist than Ehring's version.

In this chapter I will outline Wolterstorff's objection to natural class trope nominalism, recount Ehring's defence of natural class trope nominalism from the objection, and present some common objections to counterpart theory. Ehring claims that his defence of natural class trope nominalism is successful within both Mark Heller's version of actualism and D. M. Armstrong's combinatorial theory of possibility—Armstrong's is also an actualist theory of modality. It seems that Ehring's defence of

⁶⁴ See Douglas Ehring, "Property Counterparts and Natural Class Trope Nominalism."

natural class trope nominalism is, indeed, successful within Heller's ersatzism, but there are good reasons to believe that Ehring's counterpart-theoretic defend of natural class trope nominalism fails within Armstrong's combinatorial theory of possibility. In Chapter 4, I will show why this is the case. In Chapter 5, I will present my own version of natural class trope nominalism, show how it meets Wolterstorff's objection—on my version of natural class trope nominalism Wolterstorff's objection doesn't even get started—and draw out the benefits of my account of natural class trope nominalism over Ehring's.

3.1 Wolterstorff's Objection to Natural Class Trope Nominalism

According to Wolterstorff, the strategy of identifying types⁶⁵ with natural classes has a venerable tradition going at least as far back as Peter Abelard. However, it has only been in more recent times that types have been identified with natural classes of tropes; earlier identifications of types with natural classes were identifications of types with natural classes of particulars. The identification of types with natural classes of tropes is a significant improvement over the earlier identification of types with natural classes of particulars. (See the introduction to Chapter 2. Natural class *trope* nominalism avoids (CD), whereas natural class nominalism doesn't.)

There is another problem, however, that arises for the natural class nominalist and the natural class trope nominalist alike. The problem arise when certain modal scenarios are considered. It seems to be case that there could have been more instantiations of any given type; there could have been more red tropes—or, for the natural class nominalist,

⁶⁵ Wolterstorff speaks of 'predicables' rather than 'types'. But, for Wolterstorff, predicables are universals. Natural class trope nominalists reject universals; therefore, I will, without compromising any of the force of Wolterstorff's objection, characterize Wolterstorff's predicables as types.

more red particulars—than there actually are. However, once the natural class trope nominalist admits this modal fact, the natural class trope nominalist seems committed to something much more objectionable: that, had there been but one more or one fewer red trope or had there been there been just as many but different tropes, the type redness would not have existed. A parallel problem arises for the natural class nominalist. Hereafter, however, I will focus only upon natural class trope nominalism.

Types do not have their tokens essentially; that is, a type's identity does not change even if it gains or loses tokens. This is not the case with classes. Classes *do* have their members essentially. (I will not defend this claim here. I refer the reader to Wolterstorff.⁶⁶) If types are identified with classes, then types will have their tokens essentially, just as classes have their members essentially. Consider the class referred to by the phrase 'the maximal class of red tropes'. It has as its members each of the red tropes. Call this class 'R'; it has n members. Suppose another possible world had obtained, one in which there are $n + 1$ red tropes. Had that world obtained, the phrase 'the maximal class of red tropes' would have referred to a class that has $n + 1$ members. Classes have their members essentially, so any class that has $n + 1$ members is distinct from any class that has only n members. Call the class with $n + 1$ members 'R+'. R+ and R are distinct classes. If types are identified with natural classes of tropes, the type identified with R+ is distinct from the type identified with R. Natural class trope nominalists *do* identify types with natural classes of tropes, so redness turns out to be distinct from redness. But this is absurd. Had there been only one more red trope, the maximal class of tropes identified with redness would not have existed. Rather, a

⁶⁶ Wolterstorff, *On Universals*, 178-180. (The reader may also want to consult Van Cleve, "Why a Set Contains its Members Essentially.")

different class would have existed in its place. Thus, had there been only one more red trope, the type redness would not have existed and a distinct type would have existed in its place. Wolterstorff says,

It is certainly not true ... of every [type] that it is impossible that it should have had different [tokens] from those it does have. For example, it is true of the class of all [red tropes] that it is impossible that it should have had a different membership from that which it has; but it is not true of [redness] that it is impossible that it should have had different [tokens] from those it has. Consequently, [redness] cannot be identified with the class of all [red tropes].⁶⁷

3.2 Ehring's Defence of Natural Class Trope Nominalism

The import of Wolterstorff's objection is that natural class trope nominalism makes types too dependent on tokens; types have their tokens essentially. A similar problem arises in various theories of modality. Many modal theorists deny transworld identity for particulars, claiming instead that particulars are world-bound (no particulars exist in more than one possible world). This claim, however, has the undesirable consequence of making too much essential to particulars. For instance, if particulars are world-bound, it is an essential rather than a contingent fact about the Eiffel Tower that it is located in Paris, since the object denoted by the proper name 'the Eiffel Tower' exists only in the actual world. No tower in any other possible world, even if it resembles the Eiffel Tower exactly, is the same particular as the actual Eiffel Tower. But it seems to be a contingent fact about the Eiffel Tower that it is located in Paris. Thus, modal theorists introduce counterpart theory to accommodate our intuitions about an particular's contingent and essential properties. To account for the (seemingly true) modal claim that the Eiffel

⁶⁷ Ibid., 180.

Tower could have been located in London, modal theorists claim that, although the Eiffel Tower in the actual world is strictly non-identical to any tower in any other possible world, the Eiffel Tower has an other-worldly *counterpart* that is located in London. It is the fact that the Eiffel Tower has an other-worldly counterpart that is located in London—properly speaking, the Eiffel Tower counterpart is located in *a London counterpart*—that preserves the truth of the modal proposition that the Eiffel Tower could have been located in London.

Douglas Ehring has proposed that counterpart theory can be extended to types of tropes, thereby making it possible for the natural class trope nominalist to meet Wolterstorff's objection. In the same way that counterpart theory preserves the truth of certain modal propositions about this-worldly particulars that, properly speaking, are world-bound, Ehring employs counterpart theory to preserve the truth of certain modal proposition about types that, properly speaking, are also world-bound. He formulates Wolterstorff's objection in the following way:

Since there are red tropes that might not have existed, (A) the type 'redness' and the class of actual red tropes are such that they might not have been identical. But if 'redness' is identical to the class of actual red tropes, by Leibniz's law, it follows that (B) the class of actual red tropes and the class of actual red tropes are such that they might not have been identical, which is absurd. Hence, the type 'redness' is not identical to the class of all the actual red tropes.⁶⁸

(A) seems to be true; (B) seems patently false. Yet, for the natural class trope nominalist, (B) seems to follow from (A). Ehring claims that the natural class trope nominalist can deny that (B) follows from (A), while granting both that (A) is true and (B) is false. He maintains that it is possible to deny the entailment by developing a counterpart theory for

⁶⁸ Ehring's formulation of Wolterstorff's objection parallels Lewis's articulation of an objection against the view that persons are identical to their bodies. (See Ehring, "Property Counterparts and Natural Class Trope Nominalism," 448.)

natural classes (that is, types) of tropes. Ehring says that on a counterpart theoretic translation of the objection, (A) would read as the true claim “there is a world W in which there exists a type-counterpart to redness but no class-counterpart to the class of actual red tropes” and (B) would read as the false claim “in W there is a class-counterpart X to the class of red tropes and a class-counterpart Y to the class of red tropes such that X and Y are non-identical.” On the counterpart theoretic translation of the objection, says Ehring, (B) no longer follows from (A). “‘Being a T -type trope’ could have been instantiated in the absence of some members of [the maximal class of T tropes]—although being a T -type trope just is being a member of [the maximal class of T tropes]—if there is a ‘type’ counterpart, even if there is no ‘class’ counterpart, in a world W for ‘being a T -type trope’.”⁶⁹

Objects can stand in many different counterpart relations. Different counterpart relations pick out different counterparts. For instance, some particular in some other possible world could be my counterpart according to counterpart relation P but not according to counterpart relation Q. Ehring proposes two sorts of counterpart relations for natural classes (that is, types): a type-counterpart relation and a class-counterpart relation. The class-counterpart relation, says Ehring, is just class identity,⁷⁰ whereas type-counterpart relations are relations of resemblance. But, for the natural class trope nominalist, resemblance is determined by membership in a natural class; tropes resemble only if they are members of a common natural class; and types of tropes resemble only if

⁶⁹ Ibid., 450.

⁷⁰ Ehring claims that on the counterpart-theoretic reading of (B) (B) turns out to be false. Take any actual class of tropes; there is no possible world in which the class-counterpart relation picks out two non-identical counterparts for this class. This is correct, but not quite in the way Ehring seems to suggest. Taking Ehring at his word, there is no actual class of tropes that has *any* class-counterpart in *any* other world, since, for Ehring, tropes are world-bound. (B) is false, but trivially false.

either (i) they overlap (some tropes are members of both classes) or (ii) they are both subclasses of a common natural class.

This raises some problems for Ehring. Ehring needs a counterpart-theory for types to meet Wolterstorff's objection, and he needs an account of resemblance between types, because type-counterpart relations are resemblance relations. But the types for which Ehring must develop an account of resemblance exist in different possible worlds. So Ehring must be able to say how a type that actually exists resembles a non-identical type that possibly exists. Furthermore, his account of resemblance between types must be consistent with natural class trope nominalism. Thus, if a type (natural class) in the actual world is to have a type-counterpart in some other possible world w^* , the two classes must either overlap or be subclasses of some common natural class. According to the first disjunct, if the two classes overlap, then some tropes must exist in both the actual world and in w^* . But Ehring cannot accept this consequence, because he denies transworld identity. According to the second disjunct, if the two classes are subclasses of a common natural class, then, given Ehring's denial of transworld identity, there must be some natural class such that it has some actually existing members and some merely possible members. But Ehring is an actualist; he denies the existence of mere possibilia. So, if Ehring is to make his counterpart-theoretic defence of natural class trope nominalism successful, he must say more about issues of modality. (Notice that this problem does not arise for the possibilist who holds Ehring's account. A possibilist, even if he denied transworld identity, could hold that the two classes are subclasses of some common natural class—for the possibilist, merely possible tropes exist, although they exist in possible worlds other than the actual world. However, for my purposes, the possibilist is

no better off adopting Ehring's view of types than Ehring, as an actualist, is. The possibilist must still rely upon counterpart relations to meet Wolterstorff's objection, since Ehring's view is that for a trope to be of a certain type is just for it to be a member of a certain natural class of *actual* tropes.)

Ehring suggests that his counterpart-theoretic defence of natural class trope nominalism can be made successful on either Mark Heller's ersatzism or D. M. Armstrong combinatorial theory of possibility. Earlier I suggested that Ehring's counterpart-theoretic defence fails on Armstrong's combinatorial theory of possibility. This will be the subject of the next chapter. In the remaining portion of this section I will give a brief account of Ehring's counterpart-theoretic defence on Heller's ersatzism.

For Heller, worlds are "maximal-consistent descriptions of the concrete world, one of which is true and the rest false."⁷¹ Complete world descriptions, on Heller's view, are complete descriptions of property distributions. These complete descriptions of property distributions can be represented in many different ways; they could, for instance, be represented by English sentences or, for that matter, by sets of sets of numbers. Heller suggests that worlds be represented by sets of sets of numbers, where some of the numbers function as existentially bound variables. These sets of numbers that describe possible worlds all exist in the actual world, thereby satisfying the actualist's primary concern that talk of possible worlds does not commit him to the claim that possibilia exist. An example of a world, one with a two-dimensional manifold, on Heller's view might be the following:

$$(\exists F_3) (\exists F_{43}) (\exists F_{51}) \dots (L\langle 12,55 \rangle \ \& \ L\langle 22,33 \rangle \ \& \ L\langle 101,5 \rangle \ \dots \ \& \\ AF_3\langle 12,55 \rangle \ \& \ AF_{43}\langle 22,33 \rangle \ \& \ AF_{51}\langle 101,5 \rangle \ \dots \ \& \ \langle 12,55 \rangle \neq \langle 22,33 \rangle \neq \\ \langle 101,5 \rangle \ \dots \ \& \ F_3 \neq F_{43} \neq F_{51})$$

⁷¹ Mark Heller, "Property Counterparts in Ersatz Worlds," 295.

(where ' F_x ' is to be interpreted as ' x is a property', ' Lx ' as ' x is a location L ', ' AFx ' as ' F is located at x ', and ordered pairs of numbers (e.g. $\langle 12,55 \rangle$) are locations).⁷²

Within a world, says Heller, the same numbers represent the same thing; however, numbers do not necessary represent the same thing across worlds. (Heller requires this so that his linguistic ersatzism can account for alien properties (properties that do not actually exist but might have existed). Alien properties cannot be named, yet the linguistic ersatzist must be able to represent them. If the numbers that represent properties function within the sets as existentially bound variables, then the ersatzist seems to be able to represent properties without naming them.) If a natural class trope nominalist, such as Ehring, wanted to avail himself of Heller's ersatzism, Heller's world descriptions would have to be modified somewhat to accommodate tropes. An example of a natural class trope nominalist's world might be something like this:

$$(\exists R_1) (\exists R_{20}) (\exists R_{32}) \dots (\exists Y_3) (\exists Y_{43}) (\exists Y_{51}) \dots (L\langle 12,55 \rangle \& L\langle 22,33 \rangle \& L\langle 101,5 \rangle \dots R_1TY_3 \& R_{20}TY_{43} \& R_{32}TY_{51} \dots AR_1\langle 12,55 \rangle \& AR_{20}\langle 22,33 \rangle \& AR_{32}\langle 101,5 \rangle \dots \& \langle 12,55 \rangle \neq \langle 22,33 \rangle \neq \langle 101,5 \rangle \dots \& R_1 \neq R_{20} \neq R_{32} \dots \& Y_3 \neq Y_{43} \neq Y_{51})$$

(where ' R_x ' is to be interpreted as ' x is a trope', ' Y_x ' as ' x is a type', ' Lx ' as ' x is a location L ', ' RTY ' as ' R is of type Y ', ' AFx ' as ' F is located at x ', and, again, ordered pairs of numbers are locations).⁷³

A Heller-style actualism affords Ehring a way to successfully employ his counterpart-theoretic defence of natural class trope nominalism. For Heller, counterpart relations hold between descriptive elements in world descriptions. So, on his view, a modal proposition $\diamond x$ about actual entities is true if the elements (variables, ordered pairs, etc.)

⁷² Ibid., 299.

⁷³ The symbols ' $(\exists Y_3)$ ' ' $(\exists Y_{43})$ ' ' $(\exists Y_{51})$ ' are not to be construed as making the ontological claim that types are the same sort of entity as universals; for the natural class trope nominalist ' $(\exists Y_3)$ ' ' $(\exists Y_{43})$ ' ' $(\exists Y_{51})$ ' merely assert that there are some natural classes of tropes. Given the natural class trope nominalist's account of natural classes, which tropes belong to which natural classes is a primitive fact about the world.

describing them in the actual-world description have counterparts in some other world description according to which x is true. Take the actual type redness. The actual-world description describes its distribution exactly. But redness could have had a different distribution. This is true, on Heller's view, if there is some other world description in which some of its elements represent a property as having a nomological role that is similar to the actual nomological role of redness (as it is represented in the actual-world description) and in which its elements represent that property as having a different distribution than redness does in the actual-world description. Ehring's counterpart-theoretic defence seems to be successful, since there will be some possible worlds in which there is a type-counterpart for redness that has more tokens than redness does in the actual world. That is, there will be some world descriptions that represent some type (i) as having more tropes than redness is represented as having in the actual-world description and (ii) as having the same nomological role as redness does in the actual world.

3.3 Counterpart Theory: Some Objections

Lastly, I will say a few words about counterpart theory. Ehring seems to have advanced a successful defence of natural class trope nominalism with the aid of Heller's ersatzism. However, Ehring's defence of natural class trope nominalism depends heavily upon counterpart theory. Counterpart theory is held in disrepute by many philosophers. Thus, if a defence of natural class trope nominalism could be mounted without depending upon counterpart theory, it would, *ceteris paribus*, be a better defence of natural class trope nominalism. Before advancing my own defence of natural class trope nominalism *sans*

counterpart theory in Chapter 5, I will briefly motivate the claim that, if at all possible, counterpart theory should be avoided. Here I will rely heavily upon Alvin Plantinga.⁷⁴ Plantinga's objections to counterpart theory are formulated in terms of particulars. His objections, however, also apply to properties or, for the natural class trope nominalist, types of tropes. Once I have presented Plantinga's objections to counterpart theory for particulars, I will suggest how they might also work as objections to counterpart theory for types of tropes.

In modal discourse, counterpart theory is pressed into service by modal theorists who accept the claim that particulars are world-bound, the claim that no particular exists in more than one possible world. As I alluded to in § 3.2, counterpart theory is employed to preserve the truth of certain possibility claims. There are reasons to suppose, however, that counterpart theory fails in this task.

Consider the proposition that Socrates could have been foolish. It is true. But what are the truth conditions for such a modal proposition? One might say that the proposition that Socrates could have been foolish is true if and only if Socrates exists in some possible world and has the property *being foolish* there. This truth condition for the proposition is not, however, the counterpart theorist's truth condition. According to the counterpart theorist, Socrates, the Socrates of this world, does not exist in any other world. The counterpart theorist provides a different truth condition for the proposition in question: the proposition that Socrates could have been foolish is true if and only if Socrates has a counterpart in some other possible world that has the property *being foolish*. Plantinga points out that there are two ways to take the counterpart theorist's treatment of the modal proposition in question: (i) as a specification of the meaning of the

⁷⁴ Alvin Plantinga, *The Nature of Necessity*, 102-120.

modal sentence "Socrates could have been foolish" or (ii) as specification of the metaphysical truth about modality. Plantinga argues that counterpart theory fails on both accounts.

First, consider counterpart theory as a specification of the meaning of modal sentences. (Plantinga presents two reasons why counterpart theory fails on this account. I will present only one.) Take the following sentence:

- (a) Michael Jordan and Scottie Pippen could have been such that Pippen resembles Jordan-of-the-actual-world more than Jordan does.

(a) is true. For instance, Jordan might have been such that he was clumsy, interested more in philosophy than in basketball, and born in France. Pippen might have been such that he shaved his head regularly, was somewhat smaller, and was slightly more talented as a basketball player. In a world in which Jordan and Pippen have these properties rather than the ones they have in the actual world, Pippen-of-the-possible-world would have resembled Jordan-of-the-actual-world more than Jordan-of-the-possible-world does. Thus, (a) is true. However, if counterpart theory is taken as a theory of semantics for modal sentences, (a) doesn't satisfy a counterpart theorist's truth conditions for modal sentences. Counterpart relations are relations of resemblance. However, according to counterpart theory, not just any resembling object in another world counts as a counterpart for Jordan. If Jordan-of-the-actual-world has a counterpart in some possible world, it is the object in that world that *most* resembles him. In the possible world I just described, Pippen-of-the-possible-world resembles Jordan-of-the-actual-world more than Jordan-of-the-possible-world does. So Pippen-of-the-possible-world, rather than Jordan-of-the-possible-world, is Jordan-of-the-actual-world's counterpart. But, according to the counterpart theorist, (a) would only be true if there was some possible world w^* in which

Pippen-of-the-actual-world has a counterpart that resembles Jordan-of-the-actual-world more than Jordan-of-the-actual-world's counterpart in that world does. This truth condition is not satisfied in the possible world I just described, because in that world it is Jordan-of-the-actual-world's counterpart, rather than Pippen-of-the-actual-world's counterpart, that most resembles Jordan-of-the-actual-world.⁷⁵

Second, consider counterpart theory as a specification of the metaphysical truth about modality. Perhaps the most pressing difficulty for counterpart theory as a metaphysics of modality is that it clashes with our pretheoretical intuitions. Take a possible state of affairs that does not obtain: Steve Nash's never winning the NBA's Most Valuable Player Award. If this state of affairs had obtained, we as Canadians would, no doubt, have been saddened that Shaquille O'Neal had won the award yet again; but, more importantly, we would think that it was the self-same point guard who now plays basketball for the Phoenix Suns who had been denied the award and not some basketball player who merely shares many similarities with him who had been denied that award. Likewise, if I believe it to be possible that I could have taken over the family farm rather than pursue graduate studies in philosophy, I believe that, had that state of affairs obtained, I would have been the one turned farmer and not merely somebody who resembles me in many significant ways.⁷⁶

⁷⁵ This, of course, is not the last word on the matter. There are ways in which the counterpart theorist might respond to this objection. Counterpart relations are similarity relations. Lewis has pointed out that similarity judgments are extremely shifty and context dependent and that, when it comes to making judgments of similarity, not all aspects of similarity are relevant; for instance, the ratio of consonants to vowels is surely not relevant when judgments of similarity are made about the writings of Heidegger and Wittgenstein. (Lewis, "Counterfactual Dependence and Time's Arrow," 466.) What this means is that counterpart theorist might be able to provide an account of resemblance relations such that they are context sensitive and pick out only appropriate counterparts.

⁷⁶ Saul Kripke has also raised this objection. See Kripke, *Naming and Necessity*, 45n.

Both of these objections are just as problematic for types of tropes. Consider the following claim:

(b) *Being red* and *being blue* could have been such that *being blue* resembles *being red-of-the-actual-world* more than *being red* does.

(b) is true. For instance, *being blue* could have had *being red*'s nomological role. And *being red* could have had a radically different nomological role. Perhaps Heller's theory of modality is correct, and a property's nomological role is just its distribution. Then, for the natural class trope nominalist, this just means that the members of the natural class of blue tropes might have been located where the members of the natural class of red tropes are located. And the members of the natural class of tropes might have had radically different locations than they actually have. A world such as this would make (b) true. But if we take counterpart theory to be a theory of semantics for modal sentences, (b) doesn't satisfy a counterpart theorist's truth conditions for modal sentences. In the possible world I have just described, *being blue-in-the-possible-world* is *being red-in-the-actual-world*'s counterpart, because *being blue-in-the-possible-world* resembles *being red-in-the-actual-world* more than *being red-in-the-possible-world* does. This is the same problem that arose for (a).

Consider another modal claim about a pair of properties:

(c) *being red* could have been systematically co-instantiated with *being 1 meter in length*, i.e. it could have been the case that everything that has the property *being red* also has the property *being 1 meter in length*, and vice versa.

(c) is also true. But according to the counterpart theorist, what makes it true is that *being red* has a counterpart in some possible world that is systematically co-instantiated with *being 1 meter in length*'s counterpart. That is, what makes (c) true is that, in some possible world, there is a property that resembles *being red*, although it is strictly non-

identical to *being red*, that is systematically co-instantiated with some property that resembles *being 1 meter in length*, although, again, this property is strictly non-identical to *being 1 meter in length*. But what, one might ask, does the fate of some other-worldly property, one that is strictly non-identical to *being red*, have to do with the modal properties of *being red*?

These are but a few of the reasons for why many philosophers have found counterpart theory for particulars to be objectionable, and why philosophers might find a counterpart theory for properties (types of tropes) equally objectionable. Whether the costs of counterpart theory are overcome by the benefits of denying transworld identity I will not discuss here. The arguments of the previous pages will, I trust, suffice to show that, *ceteris paribus*, a defence of natural class trope nominalism that doesn't depend upon counterpart theory is better than one that does.

Chapter 4: Why Ehring Cannot Be an Armstrongian Combinatorialist

When it is combined with Armstrong's combinatorial theory of possibility, Ehring's counterpart-theoretic defence of natural class trope nominalism requires some finessing. Armstrong claims that possible worlds are to be "constructed" entirely from actually existing elements. This means that, although Armstrong is easily able to account for possibilities in which types have fewer tokens, he is, *prima facie*, unable to account for possibilities in which types have more tokens than they actually do. If this is correct, then, for the natural class trope nominalist who adopts Armstrongian combinatorialism, there is no class of $n + 1$ red tropes (where n is the number of actual red tropes) to serve as a type-counterpart to the actual type redness. Ehring suggests that the natural class trope nominalist shift his attention, instead, to the *truthmakers* for types. The counterpart for the type redness would then be the truthmaker class for the type redness+ (the possible type that has one more token than redness does), because the class of truthmakers for the existence of redness overlaps the class of truthmakers for the possible existence of the type redness+. If this is correct, Ehring's project succeeds within Armstrongian combinatorialism. However, if Armstrong cannot provide truthmakers for the possible existence of redness+, then, for Armstrong, redness+ is not even possible and Ehring's project fails.

My claim, in this chapter, is that Armstrong cannot provide truthmakers for propositions about alien entities (entities, whether they are particulars, universals, or tropes, that do not actually exist but could have existed and are not "combinatorially constructible" from actual entities). This means that, for Armstrong, alien entities are not

even possible. Thus, Ehring's defence of natural class trope nominalism within Armstrongian combinatorialism fails.⁷⁷

I will proceed as follows. In the next section I call attention to some of Armstrong's general metaphysical theses. These theses have a significant role to play in this discussion concerning alien entities. Then, in § 4.2, I focus on Armstrong's combinatorial theory of possibility, giving particular attention to what Armstrong has to say about alien entities. In § 4.3, I present some criticisms of Armstrong's account of alien entities. My criticisms in this section pertain to Armstrong's account of alien entities as it appears in *A World of States of Affairs*. Finally, in § 4.4, I consider briefly the account of alien entities Armstrong presents in *Truth and Truthmakers*.

4.1 Armstrong on Ontology

There are three main theses that drive Armstrong's metaphysics: naturalism, physicalism, and factualism. Naturalism, according to Armstrong, is the view that "the world, the totality of entities, is nothing more than the space-time system."⁷⁸ Armstrong's

⁷⁷ I am *not* claiming that Ehring's defence of natural class trope nominalism fails absolutely; in the previous chapter I claimed that Ehring's defence is successful within Heller's ersatzism. I should also note that, if the natural class trope nominalist thinks alien tropes are impossible, he is free to accept Armstrong's combinatorialism. He is then also not affected by Wolterstorff's objection, because if he believes that alien tropes are impossible, he doesn't have to explain how redness and redness+ are the same type: there couldn't be $n + 1$ tropes. Although the natural class trope nominalist is free to maintain that alien tropes are impossible, this sort of claim would be a cost for natural class trope nominalism, because it seems to be a straightforward possibility that there could be more (or different) tropes than there actually are.

⁷⁸ (Armstrong, *A World of States of Affairs*, 5.) Jaegwon Kim, in his review of Armstrong's 1986 paper "The Nature of Possibility," describes Armstrong's naturalism as a combination of three elements: actualism, nominalism, and scientific realism. (Kim, "Possible Worlds and Armstrong's Combinatorialism," 598.) The actualist component rules mere possibilities out of Armstrong's ontology—in this way Armstrong's ontology stands in stark contrast to Lewisian modal realism. The nominalist component, the thesis that everything that exists exists in space-time, rules out uninstantiated universals and perhaps Cartesian souls. (Readers familiar with Armstrong's work may find this characterization of his metaphysics surprising, given Armstrong's sustained arguments against views that do not countenance universals, views that have traditionally fallen under the umbrella of nominalism. It is true that nominalists have traditionally been motivated by the principle that one's ontology ought, *ceteris paribus*, to be sparse,

naturalism is closely related to physicalism. For Armstrong, physicalism is the view that “the only particulars that the space-time system contains are physical entities governed by nothing more than the laws of physics.”⁷⁹ On this view, the truly fundamental universals, the ones that enter into the laws of nature, are the ones that are studied by science. All other universals are structures “built out of” the fundamental universals.

Factualism is the thesis that “the world, all that there is, is a world of states of affairs.”⁸⁰ For Armstrong, there is an important relationship between states of affairs and truths, truthmakers, and supervenience. Truths require truthmakers, things in the world that make truths true. The relationship between a truthmaker and its corresponding truth is an internal relation of necessitation; truthmakers necessitate truths.⁸¹ It could also be said that truths are supervenient upon truthmakers. Armstrong says, “entity Q supervenes upon entity P if and only if it is impossible that P should exist and Q not exist.”⁸²

Armstrong’s central thesis in *A World of States of Affairs* is that states of affairs are required to make certain truths true. This can be brought out in the following way.

Suppose that *a* is F. What makes the truth that *a* is F true? It is not the mereological sum *a* + F; even if *a* exists or *a* + F exists, a particular other than *a* could be F. For this reason, the mereological sum *a* + F does not necessitate the truth that *a* is F. Likewise, suppose that *a* bears R to *b*; the mereological sum *a* + R + *b* does not necessitate the truth that *a* bears R to *b*. Of course, the mereological sum *does* necessitate the following

and in this sense Armstrong’s views might well fall under the nominalist label, but other aspects of Armstrong’s views, such as his acceptance of universals, make the label somewhat of a misnomer.) The scientific realism component amounts to a claim about how issues of ontology are decided. For Armstrong, what universals and particulars there are ought not to be decided in the armchair; only completed science will be authoritative in this regard. This is why Armstrong describes his view as an *a posteriori* realism.

⁷⁹ Armstrong, *A World of States of Affairs*, 6.

⁸⁰ *Ibid.*, 1.

⁸¹ *Ibid.*, 115.

⁸² *Ibid.*, 11.

truths: that there is some particular a , that there is some particular b , and that there is some relation R . However, the truths that a is F and that a bears R to b require something more. They require states of affairs. If the thin particular a instantiates the universal F , the state of affairs a is F obtains. Likewise, if the thin particular a stands in the external relation R to b , then the state of affairs a bears R to b obtains. Though the mereological sum $a + F$ doesn't necessitate the truth that a is F , the state of affairs a is F does necessitate the truth that a is F . *Mutatis mutandis* for the mereological sum $a + R + b$, the state of affairs a bears R to b , and the truth that a bears R to b . Thus, for Armstrong, there are two modes of composition: mereological and non-mereological.⁸³

Not only do these two modes of composition necessitate different truths, they also figure differently into Armstrong's ontology. Mereological sums do not add to Armstrong's ontology, whereas states of affairs do. This difference between the two modes of composition follows from Armstrong's views on supervenience. "Entity Q supervenes upon entity P ," says Armstrong, "if and only if it is impossible that P should exist and Q not exist, where P is possible."⁸⁴ And "whatever supervenes or, as we can also say, is entailed or necessitated, in this way, is not something ontologically additional to the subvenient, or necessitating, entity or entities."⁸⁵ Armstrong calls this the "doctrine of the ontological free lunch."⁸⁶ Mereological notions and internal relations provide two

⁸³ Lewis has argued against Armstrong's non-mereological mode of composition. (See Lewis, "Against Structural Universals.")

⁸⁴ Armstrong, *A World of States of Affairs*, 11.

⁸⁵ *Ibid.*, 12. In Armstrong's later work he qualifies the supervenience thesis; he denies that the relation is merely an entailment relation and, instead, talks strictly of necessitation. (See Armstrong, *Truth and Truthmakers*, 5-7.)

⁸⁶ Armstrong's comments concerning truthmakers, as Lewis points out, are somewhat puzzling. Armstrong claims that whatever supervenes is an ontological free lunch, no addition to being. Yet Armstrong also claims, in his formal articulation of the supervenience thesis, that "entity Q supervenes upon entity P if and only if it is impossible that P should exist and Q not exist" (emphasis mine). Armstrong seems to be claiming that the supervenient exists but is not any addition to being. How can this be? Lewis suggests

examples of supervenience. For instance, it is impossible for the entities a and F to exist without the mereological sum $a + F$ existing.⁸⁷ Likewise, internal relations supervene upon their terms, because it is impossible for the terms to exist and the internal relations fail to hold between them. So, with respect to the two modes of composition, Armstrong says,

mereological wholes supervene on their parts, as do the parts supervene on the wholes. Given one, the other is entailed. And on the basis of this it may be concluded that the wholes are no increase of being beyond that of their parts. This is not the case when constituents such as certain particulars and [universals] are brought together in states of affairs.⁸⁸

States of affairs are not ontological free lunches, because they do not supervene on what particulars and universals exist; two particulars, a and F , can exist without the state of affairs a is F existing. Thus, for Armstrong, states of affairs are an increase of being and an addition to his ontology.

Finally, states of affairs also obey a thesis he calls ‘independence’. The thesis of independence is the general claim that no first-order state of affairs necessitates the existence or non-existence of any other first-order state of affairs. Thus, states of affairs and their constituents are, one and all, contingent beings. Of course, independence fails for higher-order states of affairs, because higher-order states of affairs are structures of first-order states of affairs. In this way, necessary connections abound between first-order states of affairs and higher-order states of affairs. But it is the radical independence

that Armstrong has an unfamiliar notion of ontology and that all Armstrong means when he claims that a supervenient entity is no addition to being is that the supervenient entity is superfluous as a truthmaker. (See Lewis, “A Combinatorial Theory of Possibility: Critical Notice,” 216.)

⁸⁷ This, of course, assumes the necessary truth of unrestricted mereological composition.

⁸⁸ Armstrong, *A World of States of Affairs*, 120. This amounts to the claim that wholes have their parts essentially, a claim that is not universally accepted.

of first-order states of affairs that undergirds Armstrong's combinatorial theory of modality.⁸⁹

4.2 Armstrong's Combinatorialism and Aliens

Armstrong's combinatorial theory of possibility is an attempt to construct a theory of modality that conforms to his naturalism, physicalism, and factualism. It provides answers for at least two questions: (a) what makes modal truths true and (b) what is possible? The answer to (b) follows from Armstrong's independence thesis. States of affairs and their constituents function as radically interchangeable atoms. Any thin particular can have any combination of simple universals—hence the name of Armstrong's theory of modality. This notion of combination, claims Armstrong, is exactly "*what possibility IS.*"⁹⁰ There are, however, strict limits upon the elements that are available for recombination. Armstrong, in keeping with his naturalism and physicalism, denies mere possibilities; whatever exists exists actually and, moreover, stands in causal relations to the other entities in the spatiotemporal order. Armstrong also draws a sharp distinction between doxastic possibility, or conceivability, and metaphysical possibility. Doxastic possibility and metaphysical possibility, he argues, are not directly related.⁹¹ The mere fact that something is doxastically possible does not entail that it is metaphysically possible and vice versa.

The answer to (a) follows straightforwardly from Armstrong's account of truthmakers and his independence thesis. For Armstrong, the only truthmakers for truths, even modal

⁸⁹ Armstrong does not claim to have proven the independence thesis; completed science might tell us that there is some necessity *in re* amongst first-order states of affairs. He does, however, proceed on the assumption that independence holds unrestrictedly. (See Armstrong, *A World of States of Affairs*, 147.)

⁹⁰ *Ibid.*, 160. (His emphasis.)

⁹¹ *Ibid.*, 162-164.

truths, are actual states of affairs and their constituents. Consider the (true) modal proposition that *a* might have been F. That *a* might have been F is true just in case, among the constituents of actual states of affairs, there is a thin particular *a* and a universal F. (Armstrong says, “the particularity of a particular may be called the ‘thin particular’, the particular abstracted in thought from its non-relational properties.”⁹²) Given the independence thesis and the mereological sum $a + F$, $a + F$ necessitates the truth that *a* might have been F.

Because the only permissible constituents in Armstrong’s possible worlds are actually existing ones, Armstrong seems to be committed to the view that alien entities are not possible. This is a cost for Armstrong’s theory, since alien entities seem to be legitimate possibilities. Armstrong has responded to this problem. In his earlier work on the subject he attempts an account of alien particulars but rejects the possibility of alien universals.⁹³ In his more recent work, Armstrong provides an account of both alien particulars and alien universals.⁹⁴ In the rest of this section I will present Armstrong’s account of alien entities as it appears in *A World of States of Affairs*. This account differs somewhat from the account Armstrong presents in *Truth and Truthmakers*, an account I will discuss in § 4.4.

Armstrong agrees that alien entities seem to be a legitimate possibility. The challenge, for Armstrong, is to provide truthmakers for modal claims regarding alien entities in a manner that is consistent with his combinatorial theory of possibility. If we begin with the actual particulars and the relation of difference between them, says

⁹² Ibid., 109.

⁹³ See Armstrong, *A Combinatorial Theory of Possibility*, Chapter 4 and Armstrong, “The Nature of Possibility.”

⁹⁴ See Armstrong, *A World of States of Affairs*, 165-169 and Armstrong, *Truth and Truthmakers*, 86-89.

Armstrong, “we can go on to form the notion of a further such entity which is different from, other than, *each* of these original entities ... relative to the original assemblage, this new entity is an alien.”⁹⁵ These alien entities, says Armstrong, belong to an outer sphere of possibility. The main difference between the inner and outer spheres of possibility, at least with respect to particulars, involves the natures of the particulars that inhabit them. Moderate haecceitism applies to particulars in the inner sphere of possibility but not to particulars in the outer sphere of possibility; particulars in the outer sphere of possibility have no haecceities whatsoever. (The debate over haecceities is a debate about whether particulars are unique and distinct apart from their non-relational properties. Armstrong seems to distinguish between three sorts of haecceitism: anti-haecceitism, moderate haecceitism, and strong haecceitism. He holds moderate haecceitism. Consider two complete world descriptions: i) *Fa & Gb* and ii) *Ga & Fb*. According to the anti-haecceitist, (i) and (ii) are the same world; they merely have different descriptions. According to the strong haecceitist (i) and (ii) are distinct worlds, because particulars all possess unique, property-like inner natures. Armstrong agrees that (i) and (ii) are distinct, but, he argues, particulars don’t have unique, property-like inner natures. Instead, particulars are merely numerically distinct. He says, “the particularity of particulars is to be taken as fundamental and unanalyzable.”⁹⁶ The view that (i) and (ii) are distinct, but not because particulars possess unique, inner property-like natures, is, I take it, moderate haecceitism.⁹⁷) This qualification, that entities in the outer sphere of possibility do not have haecceities, is needed to accommodate, as much as possible, the spirit of Armstrong’s actualist combinatorialism; if the particulars in the outer sphere had

⁹⁵ Armstrong, *A World of States of Affairs*, 167.

⁹⁶ *Ibid.*, 109.

⁹⁷ For Armstrong’s discussion on haecceitism see *A World of States of Affairs*, 107-111.

unique, property-like inner natures, they would not be able to be combinatorially formed from the actual particulars. (In § 4.3, I will argue that, even if particulars in the outer sphere of possibility are, like particulars in the inner sphere of possibility, merely numerically distinct from each other, they are still not combinatorially constructible from actual particulars.) Although entities in the outer sphere of possibility are not *strictly* combined from actual particulars and actual universals, the *truthmakers*—actual particulars and the relation of difference that holds between them—for truths about alien particulars, says Armstrong, are actual. And, “since the relations of difference are internal, the ultimate truthmaker is no more than the plurality of the actually existing constituents.”⁹⁸ Armstrong admits that this account of alien particulars stretches his combinatorialism somewhat, since not *all* of the possibilities are derived from a strict recombination of actual states of affairs and constituents; but, says Armstrong, alien particulars seem to be more than a mere doxastic possibility and thus must be accounted for.

Armstrong’s account of alien universals follows a similar path. A combinatorial account of alien universals, however, faces some challenges not faced by a combinatorial account of alien particulars. Thin particulars, according to moderate haecceitism, do not have unique inner natures or essences; they are merely numerically distinct. If an alien particular was switched with an actual particular there would be no qualitative difference. This fact, perhaps, makes the admission of alien particulars into a combinatorial theory of possibility a palatable exception to the rule. Universals, however, are different. Universals each seem to have a unique nature, a “whatness” or quiddity. If an alien universal was switched with an actual universal, there *would* be a qualitative difference.

⁹⁸ *Ibid.*, 167.

In earlier works Armstrong was led to deny the possibility of alien universals because the quiddities of alien universals are not in any way constructible out of any actual recombinations. In Armstrong's more recent work he suggests a way for the combinatorialist to countenance alien universals. His suggestion questions his earlier claim that universals have unique quiddities. Universals, he says, are either monadic, dyadic, triadic, etc.; that is, any facts about a universal's adicity are essential to it. However, within an equivalence class of, say, monadic universals, one universal is merely numerically different from the rest of the universals within its equivalence class.

Armstrong says that

within an –adicity class ... the difference between different members would be no more than the difference between different particulars (thin particulars) considered merely as particulars. ... Each different universal within an –adicity equivalence class would presumably be *identified*, though not constituted, by the different causal powers that they bestow.⁹⁹

In this way, with the quiddities of universals no longer posing any significant obstacle to the spirit of combinatorialism, Armstrong hopes to account for alien universals in a way that is parallel to his account of alien particulars.

4.3 Criticisms of Armstrong's Aliens

Various criticisms have been raised against Armstrong's account of expanded worlds—possible worlds that contain alien entities. Whether criticisms of Armstrong's expanded worlds ultimately militate against his combinatorial theory of possibility as a viable account of modality is a question that lies outside the focus of this discussion. However, if Armstrong's account of expanded worlds fails, Ehring's defence of natural class trope

⁹⁹ Ibid., 168.

nominalism, when it is applied within the context of Armstrong's combinatorialism, fails with it. David Lewis, in his critical notice of *A Combinatorial Theory of Possibility*, says that, although Armstrong claims alien entities "fit smoothly into [his – Armstrong's] account," he "doesn't really explain how."¹⁰⁰ Armstrong's account is indeed wanting in detail, but Armstrong does construct a general account, an account that seems to be inconsistent with the rest of his metaphysical theses. In this section I will raise some criticisms for Armstrong's account of expanded worlds.

Susan Schneider has presented a compelling case against Armstrong's account of alien universals.¹⁰¹ She argues that in order to countenance alien universals Armstrong must violate some of the central theses in his metaphysics. Recall Armstrong's account of alien universals. He claims that universals do not have quiddities; in each equivalence class of universals, the universals are merely numerically different from each other. Armstrong makes this claim in an attempt to accommodate one of the central elements of his theory of modality: the possible is determined by the actual. But, in claiming that universals do not have quiddities, Armstrong runs into some problems. First, Armstrong relies upon universals to explain attribute agreement amongst particulars. If universals differ only numerically, it isn't clear how universals could do the job of separating particulars into their respective natural classes. Second, Armstrong claims that universals endow particulars with their causal powers. Again, it's not clear how universals, if they lack quiddities, can do the job Armstrong charges them with. (Armstrong also claims that universals are identified by their causal powers. If universals only differed numerically, it's not clear how universals, on his account, could be distinguished.)

¹⁰⁰ Lewis, "A Combinatorial Theory of Possibility: Critical Notice," 213.

¹⁰¹ See Schneider, "Alien Individuals, Alien Universals, and Armstrong's Combinatorial Theory of Possibility."

Finally, this view of universals seems inconsistent with Armstrong's views on the laws of nature. For Armstrong, laws of nature are relations of necessity between universals.

What distinguishes laws of nature from each other are the terms (the universals) on either side of the necessitation relation. If universals lack quiddities, it is not clear how the various laws of natures could be distinguished from each other. So it seems that Armstrong sacrifices much in the way of consistency when he denies quiddities for universals.

(In my opinion, Schneider's criticisms for Armstrong's account of alien universals are conclusive; Armstrong cannot consistently countenance alien universals. Does this conclusion, if correct, undermine Ehring's project? One could conclude, for instance, that, if Armstrong cannot account for alien universals, Ehring cannot then apply his counterpart-theoretic defence of natural class trope nominalism to Armstrong's theory of modality. This conclusion, however, might be somewhat hasty. If, as is often done in discussions concerning universals and tropes, universals are taken to be functionally equivalent to types of tropes, then the present problem, that of accounting for alien universals—alien *types* of tropes—doesn't directly threaten the success of Ehring's defence of natural class trope nominalism from the objection. In order for Ehring to meet the objection against natural class trope nominalism he requires only alien tropes of *types that are actually instantiated*—of course, insofar as the natural class trope nominalist wants to develop a systematic philosophy, an account of alien types of tropes is still required. But the quiddities of the alien tropes Ehring must be able to account for are already actually existent and thus available for recombination.¹⁰²)

¹⁰² Ehring claims that tropes, for the natural class trope nominalist, don't have quiddities. He claims, in Armstrongian fashion, that "tropes *qua* particulars and *qua* properties (of the same-adicity) ... are merely,

Schneider's criticisms, if sound, show that Armstrong cannot account for alien universals. This is a significant problem for Armstrong; but, even if Armstrong cannot account for alien universals, he might still be able to account for alien particulars. I argue that Armstrong's account of alien particulars is no more successful than his account of alien universals.

Armstrong's general strategy in accounting for alien entities is, first, to deflate the natures of the alien entities to the point where alien entities are merely numerically different than non-alien entities and then, second, to provide truthmakers for the claims that such alien entities are possible. The argument seems to be that if alien entities do not have "robust" natures, if they are merely numerically distinct, then, given the furniture of the world and the recombination principle, there are sufficient truthmakers for claims about alien entities. Schneider argues that Armstrong deflates the natures of alien entities too far. As a result, the natures of alien entities and the natures of non-alien entities are not congruent, precluding Armstrong from providing truthmakers for claims that they are possible. However, she also claims that, if Armstrong makes a slight modification to his account, he *can* account for alien particulars. If she is correct, then Ehring can countenance alien tropes—since tropes are (abstract) particulars. I will maintain, however, that even Schneider's proposed modification to Armstrong's view fails.

barely, numerically different from each other." (See Ehring, "Property Counterparts and Natural Class Trope Nominalism," 459.) This claim is problematic, if Schneider's criticisms are correct; tropes must have quiddities so that they are able fulfill their required roles within an Armstrongian metaphysic. Ehring's purposes, however, can be served even if tropes do have quiddities. The difference, with respect to quiddities, between tropes and universals is that no two universals can have the same quiddity, whereas tropes *can* have the same quiddity. (Of course, for the trope theorist, 'same' has to be cashed out in a trope-nominalist fashion; tropes can have the same quiddity insofar as their quiddities are of the same type.) Ehring only needs to show how, in an Armstrongian theory of modality, alien tropes of actual types could exist. He doesn't need to demonstrate how tropes of alien quiddities could exist.

Moderate haecceitism, recall, holds for Armstrong's non-alien (actual) particulars. But, Armstrong claims, moderate haecceitism does not hold for alien particulars. Schneider questions whether non-alien particulars with moderate haecceitist natures are suitable truthmakers for alien particulars with non-haecceitist natures. Can an entity of one sort be a truthmaker for an entity of another sort? Is Armstrong being consistent with his views on truthmaking? Schneider says 'no'. However, she suggests a way in which Armstrong can meet this objection. Schneider recommends that Armstrong affirm moderate haecceitist natures for alien particulars as well. It would then be the case that non-alien particulars have the same sort of nature as the alien particulars and thus could be suitable truthmakers for truths about alien particulars. "Intuitively, the truthmakers—actual haecceities and the relation of difference—seem to be truthmakers for statements about alien [particulars] that have non-actual [moderate] haecceities, and not, as Armstrong contends, for [particulars] lacking haecceities altogether."¹⁰³ Given this modification of Armstrong's view, says Schneider, Armstrong seems to be able to account for alien particulars.

Schneider's criticism, and subsequent modification, of Armstrong's account, however, is somewhat misguided. For Armstrong, a modal claim is true if it has actually existing truthmakers. Thus, all Armstrong needs to do, in order to show that alien particulars are possible, is to provide truthmakers for the modal claim. He says that non-alien particulars are suitable truthmakers for modal claims about alien particulars. Schneider objects because the natures of non-alien particulars are different from the

¹⁰³ Susan Schneider, "Alien Individuals, Alien Universals, and Armstrong's Combinatorial Theory of Possibility," 584.

natures of alien particulars. But Schneider's objection against Armstrong only holds if something like the following principle is true:

(TM) Only particulars with non-haecceitist natures make modal claims about alien particulars with non-haecceitist natures true.

Yet Schneider has not presented any reasons for believing that (TM) is true. As long as there are no reasons to believe that (TM) is true, Armstrong is free to deny it. And, if Armstrong is free to deny (TM), then it is not clear why Schneider's modification of Armstrong's account of alien particulars would be an improvement on it. (It is also not clear why Armstrong himself goes to all the trouble of deflating the natures of alien particulars. If modal facts about alien particulars supervene upon the existence of non-alien particulars, as he claims, whether alien particulars have haecceities or not, and whether non-alien particulars have haecceities or not, seems to be irrelevant. Again, unless Armstrong takes (TM) to be true, it matters not whether alien particulars and their truthmakers have congruent natures.)

There remains, however, some significant problems for Armstrong's account of alien particulars. For Armstrong, alien entities constitute an outer sphere of possibility. Whether the outer sphere of possibility is a domain of genuine metaphysical possibility or of merely doxastic possibility is difficult to know for certain—Armstrong isn't very forthcoming with details—but Armstrong does claim to offer an account of the outer sphere of possibility that makes it a genuine metaphysical possibility and not a mere conceptual or doxastic possibility. Armstrong says,

Consider a certain number of simple universals and simple (thin) particulars. ... Between each of these entities the internal ... relation of *difference* holds. We can go on to form the notion of a further such entity which is different from, other than, *each* of these original entities. ... Our

conception of it is in a way combinatorially formed: using the original assemblage and the relation of difference.¹⁰⁴

If we take him at his word, what is being formed is a *conception* of a thin particular (or universal) and not a *bona fide* thin particular (or universal). But, by Armstrong's own admission, the conceivable is not necessarily possible; thinking about something doesn't make it so. Thus, before his account of the outer sphere of possibility counts as a genuine metaphysical possibility, Armstrong must tell us why, in this special case, the conceivable maps on to the metaphysically possible when, in all other instances, there is no guarantee that the conceivable, the merely doxastically possible, corresponds to genuine metaphysical possibility. No such explanation is given by Armstrong.

Not only is no such explanation forthcoming, consideration of Armstrong's metaphysics makes it hard to imagine how such an explanation could be developed. For Armstrong, the essence, the default setting—to use his own words—of (metaphysical) possibility is recombination of the atoms (the actual states of affairs and their actual constituents) in his ontology. But, if recombination of actual entities defines the limits of metaphysical possibility, alien entities do not seem to be real possibilities. Mere recombination of actual thin particulars doesn't generate any more thin particulars. The same holds true for recombination of simple universals. So, it seems that, for Armstrong, alien entities are metaphysical *impossibilities*. If this is true, Armstrong's capacity to connect the doxastic possibility of alien entities to genuine metaphysical possibility is compromised from the outset.

Consider the (seemingly true) modal proposition that there might have been more particulars (or universals) than there actually are. If it is true, there must be something in

¹⁰⁴ Armstrong, *A World of States of Affairs*, 166-67.

the world that makes it true, that necessitates its truth. Armstrong's view is that the mereological sum of all the actual particulars (or universals) and the internal relation of difference that holds between them necessitates the truth. But how, one might ask, does the mereological sum of actual particulars (or universals) necessitate the truth that there might have been more particulars (or universals) than there actually are? What is it about the sheer existence of all the actual particulars taken together that makes the existence of some further entity a possibility? One might well be prepared to grant Armstrong that the mere existence of the actual particulars makes them available for recombination. But granting Armstrong that a particular's sheer existence makes its recombination a possibility is not the same as granting that a particular's sheer existence makes *another particular's existence* possible.

Maybe the possible existence of alien particulars rests somehow upon the relation of difference. Here again, it's not clear how the truth of the modal claim is necessitated. In the same way that it was not obvious how the sheer existence of non-alien particulars made the sheer existence of alien particulars possible, it is not obvious how the sheer fact that the internal relation of difference holds between two particulars makes the existence of some alien particulars possible. What does the internal relation of difference add to the mereological sum of non-alien particulars so that it necessitates the modal truth that alien particulars are possible? Armstrong could claim that the metaphysical possibility of additional particulars "piggybacks" on the relation of difference so that the sheer existence of the relation necessitates the metaphysical possibility. But, if this is Armstrong's view, then he has not offered much of an explanation for the possible existence of alien particulars. He has, instead, accounted for the possibility of alien

particulars by positing a brute necessity: necessarily, if some particulars exist and the internal relation of difference holds between them, then it is possible that there could exist more particulars than there actually are.

4.4 Armstrong On Aliens, Again

In Armstrong's more recent work *Truth and Truthmakers*, he attempts to provide new truthmakers for the proposition that expanded worlds are possible. In this section I will argue that Armstrong's new attempt to account for the possibility of alien entities also fails.

Armstrong endorses a thesis he calls 'Truthmaker Maximalism'—the principle that every truth, without exception, has a truthmaker.¹⁰⁵ There are at least two sorts of modal truths that require truthmakers: those I call 'positive possibilities' and those Armstrong calls 'mere possibilities'. Any proposition p , if it is true, is a possibility. Possibilities of this sort are the positive possibilities. If the contradictory of p , namely $\text{not-}p$, is possible, it is a mere possibility. Armstrong argues that the truthmakers for positive possibilities are also the truthmakers for mere possibilities. The claim that does most of the heavy lifting for Armstrong is the claim that all states of affairs exist only contingently, so any proposition to the effect that such-and-such state of affairs exists is, if true, only contingently true. Suppose that p is true. Since p is true, p is also possible. But, if p is true, and if p is contingent, $\text{not-}p$ is also possible. Armstrong says, "given p , and given that it is contingent, the truth 'it is possible that $\text{not-}p$ ' is entailed."¹⁰⁶ The truthmaker for p is also a truthmaker for the proposition that $\text{not-}p$ is possible.

¹⁰⁵ D. M. Armstrong, *Truth and Truthmakers*, 5.

¹⁰⁶ *Ibid.*, 84.

Armstrong's account of mere possibilities is the foundation for his account of alien particulars. The proposition that there might have been more particulars than there actually are has a truthmaker: the totality state of affairs.¹⁰⁷ The totality state of affairs seems to be a state of affairs—Armstrong calls it a “limit state of affairs”—whose constituents are the mereological sum of all the states of affairs, the unit property *being a state of affairs*, and the *all* or *totalling* relation. Like any other state of affairs, the totality state of affairs exists only contingently. Thus, its existence entails the truth of the proposition that the (actual) totality state of affairs exists and also of the proposition that the (actual) totality state of affairs might *not* have existed. So, Armstrong concludes, alien particulars are possible.

Suppose we grant Armstrong the following propositions:

- (1) There is a totality state of affairs.
- (2) The totality state of affairs exists only contingently.
- (3) For anything *x*, if *x* exists and *x* exists only contingently, then *x* is a truthmaker for the mere possibility that *x* might not have existed.

If we are prepared to grant Armstrong (1) – (3), Armstrong seems entitled to propositions (4) and (5).

- (4) The totality state of affairs is a truthmaker for the proposition that it might not have existed.
- (5) It is possible that the totality state of affairs might not have existed.

Armstrong stops at (5). Given (5), he concludes, that alien particulars are possible. But this is premature. There are three ways in which (5) could be true: there might have existed fewer particulars than there actually are, there might have existed more particulars than there actually are, there might have existed different particulars than there actually are. So (5) entails (6).

¹⁰⁷ Armstrong, *A World of States of Affairs*, 199 and Armstrong, *Truth and Truthmakers*, 71.

- (6) Either (i) there might have been fewer particulars than there actually are or (ii) there might have been more particulars than there actually are or (iii) there might have been different particulars than there actually are.¹⁰⁸

But (6) is a disjunction. Armstrong requires the truth of (ii) or (iii), yet Armstrong doesn't present any further arguments for the possibility of expanded worlds in *Truth and Truthmakers*.¹⁰⁹ What this means is that Armstrong has some more work to do. If his earlier works fail to establish the possibility of expanded worlds, *Truth and Truthmakers* does not bring him any closer. Armstrong must still show us how, within his fixed ontology, additions to being are possible.

¹⁰⁸ I originally thought that (5) entailed either (i) or (ii). Ben Caplan pointed out to me that (5) doesn't entail the disjunction of (i) and (ii); rather (5) entails the disjunction of (i), (ii), *and* (iii)!

¹⁰⁹ Although Armstrong requires the truth of (ii) *or* (iii) to show that alien particulars are possible, the natural class trope nominalist, if he or she is to employ Ehring's counterpart theoretic defence of natural class trope nominalism, requires the truth of (ii). Even if Armstrong could demonstrate that (5) entailed (iii), it would not be enough for the natural class trope nominalist.

Chapter 5: Three New Responses to Wolterstorff's Objection

Ehring's defence of natural class trope nominalism from Wolterstorff's objection relies upon counterpart theory. Many philosophers have been hesitant to embrace counterpart theory—in § 3.3 I outlined some of the reasons for this. If a defence of natural class trope nominalism could be mounted that did not rely on counterpart theory, natural class trope nominalism would be the better for it. In this chapter I will present three ways in which a natural class trope nominalist can meet Wolterstorff's objection without positing a counterpart theory for types of tropes: by accepting (i) uninstantiated tropes or (ii) possibilism or (iii) a thesis called 'transworld property exemplification'.

Ehring's version of natural class trope nominalism includes three central theses:

- (1) Any trope x is of a certain type y just in case x is a member of a certain maximal natural class of actual tropes.
- (2) Natural classes are unanalyzable.
- (3) Tropes are world-bound.

(1) is a thesis about the nature of types, but (1) is not essential to natural class trope nominalism, because it specifies something about the nature of the members of natural classes, and it is not essential to natural class trope nominalism that the only suitable members for natural classes of tropes are the actual ones. I take the essential thesis of natural class trope nominalism to be

- (1*) Any trope x is of a certain type y just in case it is a member of some maximal natural class of tropes.

(1*) leaves open what sort of tropes are the members of the natural classes that are identified with types. The possibilist can meet Wolterstorff's objection by specifying (1*) differently than Ehring does, by claiming that types of tropes are maximal natural classes of actual *and possible* tropes. If the actualist accepts transworld property

exemplification and, like the possibilist, specifies (1*) to included possible tropes, he can also meet Wolterstorff's objection without positing a counterpart theory for types. But the natural class trope nominalist does not even have to abandon (1) to meet Wolterstorff's objection. The natural class trope nominalist can maintain (1) within the context of Plantinga's theory of modality. On this view the natural class trope nominalist could maintain that there are uninstantiated tropes.

5.1 Natural Class Trope Nominalism and Plantinga's Theory of Modality

Plantinga defends a theory of modality in which properties are necessary beings;¹¹⁰ any property that exists in α (the actual world) exists in every possible world; likewise, any property that exists in any other possible world exists in α . For the realist, properties are universals, but for the trope nominalist properties have traditionally been taken to be *types of tropes*. (For the realist, if some object has the property *being red*, it has a redness universal; for the trope nominalist, if some object has the property *being red*, it has a trope of the redness type.) If Plantinga's claim that properties are necessary beings is understood as a claim about types of tropes, all types of tropes are necessary beings; every maximal natural class of actual tropes exists in every possible world and, likewise, any maximal natural class of tropes that exists in any other possible world exists in α . From this it follows—if one accepts the thesis that classes exist only if their members do—that α contains all the existing tropes there could possibly be, since α contains all the types of tropes there could possibly be. Thus, for any maximal natural class of actual tropes (tropes that actually exist) it could not have been larger than it, in fact, is. So

¹¹⁰ Plantinga, *The Nature of Necessity*, 61, "Actualism and Possible Worlds," 116-117, and "On Existentialism," 159.

Wolterstorff's objection is met without relying upon counterpart theory. Had any other possible world obtained, the same maximal natural class of red tropes would have existed and thus the type redness would not have ceased to exist.

This view would seem to imply, on the face of it, that there could not have been more red objects than there actually are, since the number of existing red tropes is constant across possible worlds. If this were indeed the case, the natural class trope nominalist would meet Wolterstorff's objection only at a significant cost; it seems to be a straightforward modal fact that, for instance, another world, exactly like α in every way except that it contains one more red rose than α does, could have obtained in α 's place. This would seem to be a possible world in which there is exactly one more red trope than there is in α . However, on Plantinga's view of properties this needn't be the case.

Plantinga claims that unexemplified properties exist just as exemplified properties do. (This follows from the thesis he calls 'actualism' (the thesis that, taking the quantifier to be absolutely unrestricted, there neither are nor could be objects that do not exist) and the thesis that there could be properties that aren't actually instantiated.) For the natural class trope nominalist, this amounts to the claim that, if there are unexemplified types of tropes, they exist. For Plantinga, the property *being a centaur* exists just as much as the property *being red* does. The parallel claim for the natural class trope nominalist is that the centaur type of trope exists just as much as the red type of trope does, even though there are, as far as we know, no centaurs in existence. This parallelism, however, has not yet shown how there could be a world in which there is one more red rose than there is in the actual world. What the natural class trope nominalist must claim is that, for any given type of trope, the type can exist even if some of its member tropes are exemplified and

some not, i.e. that it is possible that the exemplified tropes for any given type are only a proper subclass of the type. This is not exactly equivalent to the claim that there are whole types of tropes that exist and are unexemplified. However, once it is admitted that there exist whole types that are unexemplified, there seems to be no further principled reason why some types should not be only partly exemplified. So the natural class trope nominalist who adopts Plantinga's theory of modality should not be taken to be making the claim that the number of *exemplified* tropes, for any given type, is fixed, even when he claims that the number of tropes *simpliciter* is fixed.

Plantinga's theory of modality, however, does not appeal to all philosophers. Some philosophers, in particular those who are sympathetic to naturalism—the view that nothing exists except what exists in the spatiotemporal order—object to the claim that there are unexemplified properties. So perhaps natural class trope nominalism would be better served if it were defended without relying on either of these *two* theses: counterpart theory and the thesis that there are unexemplified properties.

5.2 Natural Class Trope Nominalism and Possibilism

Ehring claims that types are natural classes of actual tropes, a thesis that is consistent with actualism.¹¹¹ His counterpart-theoretic defence of natural class trope nominalism

¹¹¹ In the previous section I recounted what Plantinga takes to be actualism: the thesis that there neither are nor could be objects that do not exist. Plantinga takes possibilism to be the denial of actualism: it is false that there neither are nor could be some objects that do not exist—or its equivalent: there are or could be some objects that do not exist. Plantinga's use of the terms 'actualism' and 'possibilism' is not universal. Lewis takes actualism to be the thesis that everything is actual and possibilism to be the thesis that not everything is actual. (See Lewis, *On the Plurality of Worlds*, 97.) On this use, the actualist maintains that there is but one concrete world, whereas the possibilists maintain that there are many concrete worlds. For the actualist, possible worlds are elements (sets of propositions, sets of sets, etc.) that exist in the actual world; whereas, for the possibilist, possible worlds are existing concrete worlds, just like our world, that are not spatio-temporally connected to our world in any way. I will use the terms 'actualism' and 'possibilism'

could, however, be maintained by a possibilist; nothing precludes the possibilist from claiming that types are classes of actual tropes. But the possibilist, if he adopted Ehring's natural class trope nominalism, would be failing to avail himself of a more attractive version of natural class trope nominalism.¹¹²

A more attractive version of natural class trope nominalism for the possibilist has as its essential thesis

(1**) Any trope *x* is of type *y* just in case *x* is a member of a certain maximal natural class of *actual and possible* tropes.

This thesis is consistent with (1*), the essential thesis of natural class trope nominalism; although natural class trope nominalism identifies types with maximal natural classes, it leaves open whether the members of the maximal natural classes are actual, possible, or both. (1**) is merely an alternative specification of (1*). For a possibilist, the version of natural class trope nominalism of which (1**) is the essential thesis avoids Wolterstorff's objection altogether.

For the possibilist who holds (1**), together with (2) and (3), the maximal natural class of tropes for any given type could not have any more members than it has. Of course, it is possible that more or fewer members of any given maximal natural class could have been actual—there are possible worlds in which there are, for example, more red tropes than there are in the actual world and there are possible worlds in which there

in this latter sense. When it is necessary to refer to Plantinga's views specifically, I will make it clear that I am doing so.

¹¹² Possibilists, at least those who follow the tradition of Lewis, deny transworld identity. So many of them are already committed to upholding counterpart theory. (Kris McDaniel has recently defended a version of possibilism on which transworld identity is possible. See McDaniel, "Modal Realism with Overlap.") So, one might ask, what is the benefit, for a possibilist, in developing a natural class trope nominalism that does not rely upon counterpart theory? Given the fact that many philosophers find counterpart theory objectionable, the possibilist might benefit from employing it as sparingly as possible. If my claims in this section are correct, then the possibilist natural class trope nominalist doesn't need to rely on counterpart theory for properties, even if he must still rely on counterpart theory for particulars.

are fewer red tropes than there are in the actual world—but what worlds there are exhausts the range of possibilities there are. Therefore, the number of red tropes there are—where the existential quantification ranges over both the actual and the possible—is fixed; there is no possibility in which there are more or fewer member tropes of the type redness than there, in fact, are. Wolterstorff's objection, that there could have been more tropes of any given type, thus poses no problem for the possibilist who holds this view.

5.21 Problems for the Possibilist

The possibilist who maintains (1**) avoids Wolterstorff's objection. However, problems lie in wait. Consider the general question concerning the location of classes and sets.

Where are classes located? Are they located outside of the spatiotemporal order? Lewis says,

Set theory has its unofficial axioms, traditional remarks about the nature of classes. They are never argued, but are passed along heedlessly from one author to another. One of these unofficial axioms says that classes are nowhere: they are outside of space and time. But why do we think this? Perhaps because, wherever we go, we never see them or stumble over them. But maybe they are invisible and intangible. Maybe they can share their locations with other things.¹¹³

So perhaps they are located within the space-time order. If so, do they have determinate locations? Perhaps they are located where their members are. If so, are they located wholly and fully at multiple locations in the way that, according to some realists, immanent universals are, or are they located partly where each of their members are? Are they located everywhere? Perhaps classes are located within space-time but they

¹¹³ Lewis, *Parts of Classes*, 31.

don't have determinate locations; maybe they "float free," being located at no place in particular.

These are vexing questions for any philosopher attempting to develop a systematic philosophy of classes. However, for the natural class trope nominalist, the answers to these questions take on an additional importance, since the answers to these questions determine, not only what one's view of classes is, but also what one's view of types is. If it turns out that classes are not located in this (or any) spatiotemporal order, then the same holds true for types; if classes are located where their members are located, then types are also located where their members are located. So it is incumbent upon the natural class trope nominalist, if he wants to advance a comprehensive account of types, to provide some working answers to these questions. Some philosophers have maintained that

(4) A class is located where its members are located.

But (4) is not yet as determinate as it could be. (4) could either be the thesis that

(4a) A class is located wholly and fully where each one of its members is located.

or that

(4b) A class is located partly where each one of its members is located.

Given that both (4a) and (4b) are theses concerning classes, for the natural class trope nominalist they are also theses concerning types. However, as theses concerning types they might be problematic.

Questions concerning the location of types are perhaps no more decided than questions concerning the location of classes. But maybe we know one thing about the location of types:

(5) Types are located in this world *simpliciter*.

Take, for instance, the type redness. There are many tokens of redness in the actual world and it seems natural to say that redness exists here in this world. (Here I use the word 'world' in the way that the modal theorist uses the word. A world, for the modal theorist, includes all that there is, both concrete entities and whatever entities there are in whatever other orders of being there are.) Where else would redness be if not in this world? Let's suppose, then, that (5) is true. Can the possibilist who maintains the package [(1**) & (4a)] consistently maintain (5)? It would seem so. Even though, for the possibilist, there are many types that have member tropes in other possible worlds, if classes are located wholly and fully where each one of their member tropes are located, then, for any type, if it is exemplified in this world, it will be located wholly and fully in this world.¹¹⁴ And what is location in this world *simpliciter* if it is not location wholly and fully in this world? So, if the possibilist maintains (4a) as a thesis about the location of classes, there is no difficulty in his maintaining (5).

But there is a reason why (4a) might not be appealing to the natural class trope nominalist. Nominalists have often objected to immanent realism—the view that universals are located wholly and fully in each of their instances—on the basis of the putative location of immanent universals. Nothing, say some nominalists, can be wholly and fully located at several locations.¹¹⁵ Any nominalist who finds immanent universals unsatisfactory due to their being wholly and fully located in multiple locations is likely to

¹¹⁴ Of course, the possibilist would not be able to maintain (4a) and the thesis that unexemplified types are located in this world, since there would be no member tropes of the type in this world for the class to be "co-located" with. Perhaps this would not be an untenable position for the possibilist. Many philosophers find unexemplified types to be entities of disrepute to begin with. Such philosophers might find the consequence that unexemplified types are not located in this world amenable.

¹¹⁵ Ehring, for one, has argued that locating universals where their instances are lands the immanent realist in a contradiction, since there will be occasions in which some universal x will both be distance n and distance $\sim n$ from some other universal y . (See Ehring, "Property Counterparts and Natural Class Trope Nominalism," 446.)

find this view of classes equally objectionable. If not, the nominalist weakens the strength of his position against the realist. The realist could charge the natural class trope nominalist with holding a double standard; for instance, why could classes be wholly and fully located at multiple locations and universals not? So, although the natural class trope nominalist can hold (4a) and (5) consistently, he can't consistently object to the immanent realist's claim concerning the location of universals.

The possibilist natural class trope nominalist who holds (4b), the claim that a class is located partly where each one of its members is, does not have the same problem. He doesn't hold a double standard against the immanent realist. But for the possibilist who holds (4b) other problems arise.

According to (4b), my singleton (unit class) would be located exactly where I am.¹¹⁶ It is, of course, invisible and intangible, but that needn't prevent it from sharing the spatiotemporal locations of my concrete parts. The class whose members are me and the chair I am now sitting on is, likewise, located where I and the chair are located. Sometimes, as is presently the case, I and the chair are located immediately adjacent to each other, and sometimes there is considerable separation between me and the chair. At such times the class is still located where I and the chair are located, only then the class's location is, in a manner of speaking, diffuse. For the natural class trope nominalist who holds (4b), types are located where their tokens are. Where is the type redness? Redness is just where the red tropes are.

So for the possibilist natural class trope nominalist who holds package [(1) & (4b)], which includes the thesis that types of tropes are maximal natural classes of actual tropes,

¹¹⁶ Lewis has some sympathy for this view. (See Lewis, *On the Plurality of Worlds*, 83 and *Parts of Classes*, 31-33.)

redness is located in this world. But for the possibilist natural class trope nominalist who holds package [(1**) & (4b)], given the straightforward possibility that there are red tropes in other possible worlds, the type redness is located partly in this world *and* partly in the other possible worlds in which there are red tropes. This poses a problem. The philosopher who holds [(1) & (4b)] can say that redness exists in this world *simpliciter*. The philosopher who holds [(1**) & (4b)], however, cannot univocally say of the type redness that it exists at any one world *simpliciter*; there is no single world in which the type redness exists *simpliciter*. Redness is located partly in this world and partly in each world in which there are red tropes, but it is not located, wholly and fully, at any one world in particular.

But there is another problem for the possibilist natural class trope nominalist who holds (4b). Wolterstorff's objection rests on the intuition that types are, in some sense, the same across worlds; for instance, redness in this world is not different than redness in any other possible world. In order to accommodate the intuition behind Wolterstorff's objection, the possibilist natural class trope nominalist seems committed to the view that types have parts. However, talk of types having parts will undoubtedly rub many intuitions the wrong way; conventional wisdom holds that types are not the sort of things that have parts.

But there are also more substantive objections against the claim that types have parts. If types have parts and are the mereological fusions of their parts, then types will behave in the same way other fusions behave. Take the fusion of the CN Tower and the Eiffel Tower. Destroy one of the towers, say the CN Tower, and part of the fusion has been destroyed. Destroy both the towers and the fusion no longer exists. The same would

apply to types considered as fusions. Destroy one of the tokens and part of the type has been destroyed. Destroy all of its tokens and the type no longer exists; once all of its parts cease to exist, the fusion no longer exists. But types seem to be the sort of things that are impervious to destruction. My destruction of one stop sign or one red rose doesn't seem to have any bearing at all upon the general well-being of the type redness. Nothing seems to be subtracted from the type redness when a stop sign is destroyed, nor does redness seem, in any way, to be a lesser entity when a London telephone booth meets its end. (The four-dimensionalist who adopts this view of types has a response to this line of argument. He can claim that types are fusions of their many temporal parts. On this view, although it might be the case that at some time x none of redness's temporal parts exist, it is still the case at x that redness exists. The four-dimensionalist, however, is not likely to convert the philosopher who objects to types having parts. Such a philosopher is likely to take the four-dimensionalist's defence of the fusion view of types as a *reductio* of the view; this philosopher will likely claim that redness, if it exists at any one time, exists at *all* times even if there are some times at which no red tropes exist.)

So the package [(1**) & (4b)] seems to commit the possibilist to two claims: types are not located in this world *simpliciter* and types have parts. Although these claims are liable to strike some philosophers as *prima facie* problematic, the possibilist could argue that there are independent reasons for maintaining both a mereological view of classes and a view on which classes are located where their members are. And, if these two claims rub some intuitions the wrong way, the independent reasons for holding them make the intuitional cost light enough to bear.

Lewis has given some philosophical respectability to the mereological view of classes. He has argued that classes and subclasses are related in the same way that wholes and parts are related;¹¹⁷ for Lewis classes have their subclasses as parts and classes are just fusions (mereological sums, aggregates) of singletons (unit sets).¹¹⁸ So there is some precedent for maintaining that classes have parts. Lewis's independent arguments for the mereologization of classes also legitimize the way that the possibilist, who holds (4b), attempts to preserve the common intuition that types are the same across worlds. For instance, although there is some mystery surrounding the location of classes, there is much less mystery surrounding the location of fusions. Fusions are located exactly where their proper parts are located: for example, the fusion of the CN Tower and the Eiffel Tower is located partly in Canada and partly in France; the fusion of all the cats is located exactly where all the cats are located. Fusions can be homogenous in the way that ordinary common-sense objects such as cars, cats, and cucumbers are; or, if one accepts unrestricted mereological composition, they can be hopelessly gerrymandered such as the fusion of the Eiffel Tower, my dog Buddy, and the Pacific Ocean. No matter what parts compose the fusion, the fusion is located exactly where its proper parts are located. For this reason, there is nothing really mysterious about the location of trans-world fusions. Fusions can have parts in different worlds; and, when they do, they are located partly in each world in which they have a proper part. So, if classes are fusions of singletons, or, in this context, if the natural class of red tropes is the fusion of the singletons of all the red tropes, then the natural class of red tropes is located in many different worlds in the sense that it has parts in several worlds. And, if types are

¹¹⁷ See Lewis, *Parts of Classes*.

¹¹⁸ Lewis, *Parts of Classes*, 16.

mereological fusions of singletons of their tokens, as Lewis's classes are mereological fusions of singletons, it is not particularly incredible that the type redness is located only partly in this world.

(The view that classes are located where their members are located does not, however, strictly entail Lewis's mereologization of classes; one could maintain that, although classes are located where their members are located, there are independent reasons to believe that classes are not fusions of singletons and that classes do not have their subclasses as parts. This strategy is, perhaps, a live option for the natural class trope nominalist, although I don't know what, if anything, the natural class trope nominalist has to gain by rejecting Lewis's view.)

So, while it might be unintuitive that types have parts, the possibilist natural class trope nominalist can argue that his acceptance of types having parts is a mere consequence of his integration of two views on different topics in metaphysics: a philosophy of types and a philosophy of classes. As such, it is merely a happy result for the possibilist natural class trope nominalist that his philosophy of types and his philosophy of classes complement each other. The consequence that types have parts, he might say, is a small price to pay for such a comprehensive theory. And does it really matter if types don't exist in this world *simpliciter*? They do (if only partly) exist in this world. And it remains true that there are tropes of the redness type in this world, that redness exists (if only partly) in this world, and that there are tropes in other worlds that are of the same type as the red ones in this world. The philosopher who holds [(1**) & (4b)] can say that redness exists in this world by courtesy.

This was Lewis's response to a similar problem. For Lewis a property is the set of all the particulars that have that property. Some properties exist in more than one world. The question Lewis addresses is whether the class (property) is actual. The class, given Lewis's commitment about the location of classes, is located where its members are. Only some of its members are in the actual world, therefore the class (property) isn't, strictly speaking, actual. Lewis says that he can call these classes 'actual' by courtesy.

There is no need to decide, once and for all and inflexibly, what is to be called actual. After all, that is not the grand question: what is there?... Suppose there are things that are not our world, and not parts of our world, and not sets built up entirely from things that are parts of our world—but that I might nevertheless wish to quantify over even when my quantification is otherwise restricted to this-worldly things. If so, no harm done if I sometimes call them 'actual' by courtesy.... It is no genuine issue.¹¹⁹

There is no harm done if I say, speaking with my quantification restricted to this world, that redness exists in this world; there is no harm done if I say, granting the possibility that there are red tropes in other possible worlds, that redness exists in the actual world. Lewis also says, speaking of trans-world individuals, that "we could say that an individual exists at a world if and only if, quantifying only over parts of that world, *some part* of that individual exists."¹²⁰ There is also an analogous situation with respect to individuals and their existence at certain times. Lewis maintains that persons are fusions of their temporal parts. Even if we hold such a view, says Lewis, we could say that "Hume ... runs between 1711 and 1776. He is present in the early half of the century and in the later half."¹²¹ It matters not that, properly speaking, only a part of Hume exists at any given time. If I am right that it is of no consequence if I can't, technically speaking,

¹¹⁹ Lewis, *On the Plurality of Worlds*, 95.

¹²⁰ *Ibid.*, 211.

¹²¹ *Ibid.*, 210.

say that redness exists in this world *simpliciter*, and that it is not too much of a cost to claim that types have parts, then the possibilist natural class trope nominalist who holds [(1**) & (4b)] holds a version of natural class trope nominalism that avoids Wolterstorff's objection and does not require counterpart theory for types.

5.3 Natural Class Trope Nominalism and Actualism

The possibilist natural class trope nominalist can meet Wolterstorff's objection without positing a counterpart theory for types by maintaining (1**) instead of (1). In this section I will argue that, just as it was beneficial to the possibilist in helping the possibilist avoid Wolterstorff's objection, (1**) might be just as beneficial to the actualist.

In an earlier section (see the footnote in § 5.2), I said that actualism is the thesis that

(6) Everything is actual.

Actualism contrasts with possibilism, which is the thesis that not everything is actual. A possibilist such as Lewis maintains that other concrete worlds such as ours exist; every way our world could have been is a way some concrete world is. So actualism is, among other things, a denial of Lewis's plurality of concrete possible worlds. But an actualist doesn't deny possible worlds. For the actualist there are some actual objects, objects located in the actual world, which he calls 'possible worlds' and which are intended to play the same role as Lewis's concrete possible worlds. There is a sense in which these objects are not "actual"; not all possible worlds (actually) obtain, but all (actually) exist. So the actualist understands (6) to mean that

(6a) For anything x , if x exists, then x actually exists.

(6a) together with

(7) Everything there is exists.

are the essential theses of actualism. (7) is required to rule out the thesis that Plantinga calls 'possibilism': the thesis that there are or could be some things that do not exist. Unless it is stipulated, as it is in (7), that everything there is exists, actualism would be compatible with Plantinga's possibilism.

As the reader might already have surmised, it is not nearly so easy to see how holding (1**) could help the actualist natural class trope nominalist avoid positing a counterpart theory for types in the same way that holding (1**) helped the possibilist natural class trope nominalist avoid positing a counterpart theory for types. For the possibilist, the number of tropes there are, including both actual and possible tropes, is modally fixed. For this reason, the possibilist is able to avoid Wolterstorff's objection altogether. But, for the actualist, the situation is somewhat different. For the actualist the only tropes there are are the actual ones; no merely possible tropes exist. For the actualist, the maximal natural class of actual and possible tropes is the same class as the maximal natural class of actual tropes, since the two classes have the very same members. Had another possible world obtained, there might have been more or fewer actual tropes of any given type. Had this been the case, different types would have existed, because classes have their members essentially. In order for the actualist to benefit from (1**), I must show how the actual maximal natural class of tropes (for any given type) has as its members, not only actual tropes, but also *possible* tropes, so that, for the actualist, the number of tropes that are members of the natural class denoted by the phrase 'the maximal natural class of actual and possible tropes (for any given type)' is fixed just as it was for the possibilist. I must show how the actualist can hold the following thesis:

- (8) Some trope x is such that x exists in some possible world w , where w is not the actual world, and x has the property *being a member of* z , where z is some actual maximal natural class of tropes.

Informally, (8) says that it is possible for actual classes to have members that don't actually exist. If the actualist can consistently hold (8), then he can be helped by (1**) in the same way that the possibilist was helped by (1**). If (8) is possibly true, then there could be an actual maximal natural class of tropes that has a possible trope, one that does not actually exist, as a member. If (8) is possibly true, then it is possible that merely possible tropes are members of actual maximal natural classes of tropes. If this is the case, then the actualist, by adopting (1**), can meet Wolterstorff's objection without positing a counterpart theory for types.

However, (8) seems to be ruled out by the thesis Plantinga calls 'serious actualism'. Serious actualism is the thesis that

- (9) For any object x , x has a property P in a world W only if x exists in W .¹²²

Serious actualism, argues Plantinga, is entailed by actualism.¹²³ This can be seen as follows. First, Plantinga establishes that the property *non-existence* is necessarily not exemplified. Take any property P . If P is exemplified, then something exemplifies P . (Plantinga takes this to be obvious.) Whatever exemplifies P exists. (This premise follows from (7)—an essential claim of actualism.) From these two premises taken together, it follows that, if *non-existence* is exemplified, then *non-existence* is exemplified by something that exists. But the consequent of this conditional is clearly false. Therefore, by modus tollens, the antecedent is also false; it is (necessarily) false

¹²² See Plantinga, "De Essentia," 145. Plantinga has also defended serious actualism in "On Existentialism," "Replies to my Colleagues," 316-327, and "Two Concepts of Modality."

¹²³ Here I rely on Plantinga's defence of serious actualism as it appears in his reply to Pollock. (See Plantinga, "Replies to my Colleagues," 318-319.)

that *non-existence* is exemplified. Having established that *non-existence* is necessarily not exemplified, Plantinga then goes on to deduce serious actualism from actualism.

Suppose an object—Socrates, let's say—exemplifies a property P in a world W . Then (necessarily) if W had been actual, Socrates would have exemplified P . Now (necessarily) if Socrates had exemplified P , then either Socrates would have exemplified $P \& E$, the conjunction of P with existence, or Socrates would have exemplified $P \& \bar{E}$ (where \bar{E} is the complement of existence). As we have just seen, it is impossible that Socrates exemplify \bar{E} , and hence impossible that Socrates exemplify $P \& \bar{E}$. It is therefore necessary that if Socrates had exemplified P , then Socrates would have exemplified existence. In terms of possible worlds; suppose Socrates exemplifies P in W . Then either Socrates exemplifies P and existence in W or Socrates exemplifies $P \& \bar{E}$ in W . There is no world in which Socrates exemplifies $P \& \bar{E}$. So Socrates exemplifies existence (that is, exists) in W .¹²⁴

If Plantinga's argument is sound, then (9) is true and (8) would be false; a merely possible trope could not actually exemplify *being a member of z* if it did not actually exist.

However, Mark Hinchliff, among others,¹²⁵ has argued that Plantinga's argument for serious actualism is unsound. In order for serious actualism to follow from actualism Plantinga requires the following premise:

- (10) Nothing is such that there is a world in which it exemplifies *non-existence* (i.e. nothing is such that possibly it exemplifies *non-existence*).¹²⁶

This is what Plantinga takes himself to have established with his argument to the effect that *non-existence* is necessarily not exemplified. But, says Hinchliff, what Plantinga has, in fact, established is ambiguous between (10) and the following:

- (11) Every world is such that nothing in that world exemplifies *non-existence* in that world (i.e. necessarily nothing exemplifies *non-existence*).

¹²⁴ Ibid., 319.

¹²⁵ See Pollock, "Possible Worlds," Fine, "Reduction of Possibilist Discourse," and Hudson, "On a New Argument from Actualism to Serious Actualism."

¹²⁶ See Hinchliff, "Plantinga's Defence of Serious Actualism," 183.

Think of (10) this way: take anything there is; there is no possible world (the actual world or any other possible world) in which it exemplifies *non-existence*. Think of (11) this way: go to any possible world; take anything in that world; it does not exemplify *non-existence*. Serious actualism follows from (10), since there is nothing, quantifying unrestrictedly, that exemplifies *non-existence*. However, serious actualism does not follow from (11), because (11) is consistent with some object (say, Socrates) exemplifying *non-existence* in a world in which it does not exist. For instance, “there could be a world in which (i) nothing that exists exemplifies *non-existence*, (ii) Socrates does not exist, and (iii) Socrates exemplifies *non-existence*.”¹²⁷ Although (11) seems to be supported by the first part of Plantinga’s argument, (10) is not. But Plantinga relies upon (10) in the second part of his argument—where he deduces serious actualism from actualism; one of the premises of the second part of Plantinga’s argument is this: there is no world in which Socrates exemplifies $P \ \& \ \bar{E}$. If Plantinga hasn’t established (10), then his claim that serious actualism follows from actualism is unsupported.

Michael Bergmann has responded to Hinchliff, defending the claim that actualism entails serious actualism. Bergmann argues that the entailment of serious actualism from actualism fails only if a thesis he calls ‘transworld property exemplification’ (TPE) is true.

(TPE) It is possible that there is something that exemplifies a property in a world w without being in w (i.e., without having the property *being* in w).¹²⁸

¹²⁷ Ibid., 183.

¹²⁸ See Bergmann, “A New Argument from Actualism to Serious Actualism,” 357. (TPE) is to be distinguished from *intra*world property exemplification (the exemplification of a property in a world by an object that is in the same world), which is what we usually take property exemplification to be. Of course, an object in one world can also *intra*world-exemplify a property in another world if it exists in both worlds. This too is not to be confused with (TPE).

Bergmann argues that (TPE) is false. Suppose (TPE) is true. If (TPE) is true, then it might be true that actual world α is a world in which a property P is exemplified but not by anything in α . And given that actualism is true, there is nothing except what there is in α . So, if α is a world in which a property P is exemplified but not by anything α , then not only is it the case that P is not exemplified by anything in α , it also seems to be the case that *nothing at all* exemplifies P . But, necessarily, exemplification of a property P is exemplification of P by *something*. So (TPE), argues Bergmann, is impossible.

Hud Hudson, however, has pointed out that Bergmann's argument for the truth of (TPE) will not likely persuade the philosopher who denies that serious actualism is entailed by actualism.¹²⁹ Bergmann has argued that, if (TPE) is true, then in some world there is nothing at all that exemplifies P . And this contradicts an obvious truth: namely, that

- (12) Necessarily, exemplification of a property P is exemplification of P by *something*.

But, says Hudson, the philosopher who denies the entailment of serious actualism from actualism can consistently maintain (12), even when he claims, for instance, that Socrates exemplifies *non-existence* in worlds in which Socrates does not exist. What *is* true in such worlds is that *non-existence* is exemplified by something (namely, Socrates) that does not exist *in those worlds*. So the philosopher who denies the entailment of serious actualism from actualism must hold

- (13) There is a property P that is exemplified in some possible world w , and P is not exemplified by anything that *is in w*.

¹²⁹ See Hudson, "On a New Argument from Actualism to Serious Actualism."

But (13) is consistent with (12), because P is, in fact, exemplified by something: only what exemplifies P does not exist in w . (13) *is*, however, inconsistent with

(12a) Necessarily, exemplification of a property P in w is exemplification of P by something *that exists in w* .

But the philosopher who denies that serious actualism is entailed by actualism needn't hold (12a). And Bergmann has not provided any argument for it.¹³⁰

It seems that Bergmann is in the same position Plantinga was in. Plantinga required (10) but gave no support for it; Bergmann requires (12a) but doesn't give any support for it. As it stands, neither Plantinga nor Bergmann has managed to show that actualism entails serious actualism. In Bergmann's case, it remains possible that (TPE) is true. And as long as (TPE) is possibly true, it seems that the actualist is free to deny that actualism entails serious actualism. This is important here because it means that the actualist natural class trope nominalist seems to be able to meet Wolterstorff's objection; the actualist natural class trope nominalist need only adopt (1**) and (TPE). Once these two theses have been adopted, the actualist natural class trope nominalist can maintain that any actual maximal natural class of tropes has as its members, not only all of the actual tropes of a certain type, but also all of the merely possible tropes of that type, since it is possible for a merely possible trope to actually exemplify the property *being a member of z* , where z is some actual maximal natural class of tropes.

¹³⁰ Takashi Yagisawa has also recently defended the claim that an individual need not exist in a world to exemplify a property in that world. (See Yagisawa, "A New Argument Against the Existence Requirement.") In fact, Yagisawa argues that, given a principle called 'Strong Iterability', serious actualism—or its equivalent—is false. Caplan has responded to Yagisawa's argument. (See Caplan, "A New Defence of the Modal Existence Principle.") Caplan argues that one need not accept Strong Iterability. He argues that the serious actualist can get by with Weak Iterability, and that Weak Iterability does not entail the falsity of serious actualism. What is significant here, however, is that even if Caplan's arguments are correct, it hasn't been shown that serious actualism is true. And until the truth of serious actualism has been demonstrated, the natural class trope nominalist is free to hold (TPE).

If the arguments in this chapter are sound, the natural class trope nominalist has several ways to meet Wolterstorff's objection without positing a counterpart theory for types. Perhaps, having been presented with the different options that are available to the natural class trope nominalist, the reader will have determined that my defence of natural class trope nominalism is more of a *reductio ad absurdum* than it is a defence; maybe the reader will wonder if, for instance, (TPE) is any more in the clear than counterpart theory is. I admit that these options for the natural class trope nominalist might not be *positive* reasons for adopting natural class trope nominalism over other contenders. However, what the previous arguments have shown, I think, is that in order to conclusively refute natural class trope nominalism, one must refute each of four different views: (i) that there are uninstantiated tropes, (ii) possibilism, (iii) (TPE), and (iv) counterpart theory; the project of undermining natural class trope nominalism just became more difficult. Furthermore, if the arguments of the first two chapters are sound, I have shown that one putative advantage other solutions to the Problem of Universals have over natural class trope nominalism is illusory; that is, other philosophers claim to be able to analyze natural classes, but their claims are ill founded. Perhaps, in taking natural classes to be unanalyzable, natural class trope nominalists have been doing explicitly what other philosophers have been doing implicitly all along.

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