Non-Qualitative Properties

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The distinction between qualitative properties like *mass* and *shape* and non-qualitative properties like *being Napoleon* and *being next to Obama* is important, but remains largely unexamined. After discussing its theoretical significance and cataloguing various kinds of non-qualitative properties, I survey several views about the nature of this distinction and argue that all proposed reductive analyses of this distinction are unsatisfactory. I then defend primitivism, according to which the distinction resists reductive analysis.

§1. Introduction

The Principle of the Identity of Indiscernibles (hereafter, PII) enjoys a storied history. In one notable chapter, Black (1952) presents what is commonly taken to be a decisive counterexample to PII. Rather intuitively, Black suggests that we can conceive of a world including only two iron spheres—perfect duplicates of one another—located a small distance apart. Since we seem to have no problem conceiving of such a world, there is good reason to believe it to be a possible one. But, if such a world is possible, PII no longer enjoys the status of a necessary truth and is therefore robbed of most, if not all, of its metaphysical significance.

Along with making problems for PII, Black's argument also brings to salience an important metaphysical distinction: the distinction between qualitative and non-qualitative properties. (Throughout what follows, I will mostly ignore relations and speak primarily of properties.) This distinction is relevant to the present case because Black's spheres—let's call them 'Bruce' and 'Clark'—agree with respect to all of their qualitative properties, and disagree only with respect to their non-qualitative ones. Not only are Bruce and Clark *duplicates*, since they share the very same intrinsic qualitative properties like *being spherical* and *being made of iron*, they are also *qualitatively indiscernible*.[1] They share all the same extrinsic and relational qualitative properties like *being next to another sphere* and *being one of two iron objects*. The sole differences between Bruce and Clark are therefore non-qualitative: they involve only properties like *being Bruce* and *being distinct from Clark*.

By considering Black's sphere case, we get a rough sense of the distinction between the qualitative and the non-qualitative. Qualitative properties like *being made of iron* are what Bruce and Clark share; non-qualitative properties like *being Bruce* are what they do not share. Unfortunately, our rough grasp of the distinction does not provide us with knowledge of its precise nature (e.g., whether properties like *being an even number*

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[1] Objects that are indiscernible *simpliciter* are identical, since they are alike with respect to their non-qualitative properties as well as their qualitative ones.

or *being actual* are qualitative).[2] Instead, it supplies us with only a broad understanding of the distinction typified by remarks like the following:

> [H]aecceitistic properties—such as *being identical to John* or *being the daughter of Jim*—are those which, in some intuitive way, make direct reference to a particular individual(s).[3]

These remarks suggest that only non-qualitative properties depend upon individuals in some unspecified way, and that properties like *being Saul Kripke* are paradigmatically non-qualitative. Unfortunately, these remarks and reflection on Black's spheres tell us little else.

It is surprising, then, that so little attention has been paid to the distinction between qualitative and non-qualitative properties.[4] (Hereafter, I call this "the qualitative distinction.") In what follows, I aim to take some preliminary steps towards clarifying the nature and scope of this distinction. Alongside this clarificatory undertaking, I will argue that the qualitative distinction resists reductive analysis and is therefore metaphysically primitive. On the resulting view, the qualitative distinction is fundamental and unanalyzable, dividing the realm of properties independently of our linguistic and cognitive features.

The subsequent discussion will run as follows. Section Two demonstrates the significance of the qualitative distinction for a range of philosophical issues. Section Three briefly canvases several views about the status of the qualitative distinction. Section Four catalogues various kinds of non-qualitative properties. Section Five examines reductionist proposals for analyzing the distinction and shows them to be unsuccessful. Sections Six and Seven defend a primitivist view of the qualitative distinction and consider a few objections to this form of primitivism.

Throughout what follows, my discussion of the qualitative distinction aims to maximize metaphysical neutrality. So, while realism about properties is assumed, several controversial issues are left open.

First, I will remain neutral about whether properties are universals, tropes, sets, or some combination thereof. This neutrality comes at a price: the implications of these views for different reductionist proposals must be set aside. An example: defenders of

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[2] Our concern in what follows is the distinction between qualitative and non-qualitative properties and relations; however, 'quality' has been used to mark other metaphysical distinctions. See, for example, Russell (1918: 522) on the distinction between qualities and relations, understood as the distinction between monadic properties and polyadic relations. See Heil (2004) on the distinction between qualities and powers, understood as a distinction between (roughly) categorical and dispositional properties. See Eddon (2007) on the distinction between qualities and quantities, understood as the distinction between binary properties and properties that admit of degree.

[3] Hawthorne (2006: 8).

[4] For example, Divers (2002: 349) says, "I know of no detailed discussion of the qualitative/non-qualitative distinction for properties."

trope theory cannot accept modal analyses of the qualitative distinction, which distinguish non-qualitative properties by virtue of their modal ties to specific individuals. This is because even qualitative tropes are "non-transferrable"—i.e., instantiable by a unique individual—so no modal feature suitably distinguishes qualitative and non-qualitative properties.[5] Clearly, these and other consequences of trope theory and universal theory are significant, but, in what follows, it will be useful to set aside these partisan complications and examine the qualitative distinction in a manner neutral among competing views.

Second, although I will assume that all (non-paradox inducing) predicates express properties, I leave open whether there is an elite class of "sparse" properties, which are usefully distinguished from among these "abundant" properties because of their special metaphysical status.[6] On this sparse conception of properties, only certain predicates that occur in our best physical theories express universals, tropes, or metaphysically privileged sets.[7] The following discussion is therefore compatible with both a hybrid view, according to which properties "sparsely conceived" are universals and properties "abundantly conceived" are sets, and non-hybrid views on which all properties share the same metaphysical status (e.g., a full-blooded platonism where *electronhood* and *being a goat or a washboard* are both *ante rem* universals).

By assuming realism about abundant properties, I assume commitment to the existence of certain controversial kinds of properties including relational properties (e.g., *being taller than Fred*), disjunctive properties (e.g., *being a cat or a hat*), and negative properties (e.g., *being a non-human*). Since some properties of these kinds are non-qualitative, those who deny there are properties of these kinds will in turn deny such properties are non-qualitative. Since neutrality has its limits, this is unavoidable. At the same time, many who purport to deny the existence of these controversial properties can be usefully reinterpreted as denying only the sparsity of these properties rather than their existence. So interpreted, these views accept the existence of, say, set-theoretic constructions occupying the abundant property role but deny that relational, negative, or disjunctive properties correspond to tropes, universals, or metaphysically privileged sets.

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[5] More carefully, while qualitative tropes like a particular instance of redness are tied to specific individuals, the property *redness* is standardly identified with a class of tropes. If, however, classes have their members essentially, then the existence of these classes is correspondingly tied to the existence of specific tropes and, in turn, to specific individuals. On non-transferability and other modal issues for trope theory, see Cameron (2006) and Ehring (2004). Thanks here to an anonymous referee.

[6] See Lewis (1983) on the compatibility of the sparse and abundant conceptions of properties.

[7] Since I assume neutrality about whether there is a metaphysically significant distinction between sparse and merely abundant properties, I leave open whether the sparse-abundant distinction and the qualitative distinction crosscut one another, allowing for qualitative and non-qualitative properties at both the sparse and abundant levels. As noted in Section Five, this is a controversial claim. For example, Lewis (1986) holds that all sparse properties are qualitative.

A final terminological note before proceeding: rather than switching between familiar but non-standard terminology for non-qualitative properties (e.g., 'haecceities,' 'thisnesses,' 'impure properties,' and 'identity properties'), we can take 'non-qualitative property' to be the most general term, which subsumes these less general ones. Note, however, that a specific use of 'haecceity' and 'impure property' is suggested in Section Three, which takes these terms to pick out distinctive kinds of non-qualitative properties.

§2. The Distinction in Action
The qualitative distinction is of considerable significance for a range of metaphysical issues and projects. This section briefly notes just a few conceptual connections to the qualitative distinction.

2.1. Laws and Explanation
The qualitative distinction plays an important role in debates regarding laws and explanation. For example, it is commonly assumed that fundamental laws involve only qualitative properties and make no appeal to non-qualitative properties in their proper formulation.[8] This commitment traces back to the defense of the covering law view of explanation in Hempel and Oppenheim (1948):

> [T]he idea suggests itself of permitting a predicate in a fundamental lawlike sentence only if it is purely universal, or, as we shall say, purely qualitative, in character; in other words, if a statement of its meaning does not require reference to any one particular objects or spatio-temporal location. Thus, the terms 'soft', 'green', 'warmer than', 'as long as', 'liquid', 'electrically charged', 'female', 'father of', are purely qualitative predicates, while 'taller than the Eiffel Tower', 'medieval', 'lunar', 'artic', 'Ming' are not.[9]

Although we may disagree with this particular way of drawing the qualitative distinction and the proposed view of laws and explanation, it is clear that, for Hempel and others, a suitable account of laws and scientific explanation requires the qualitative distinction to distinguish fundamental laws. [10]

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[8] Present interest in this question typically focuses on properties rather than predicates. For discussion, see Lange (1985). See Tooley (1977) for a defense of the possibility of *de re* laws, which posit nomic connections involving non-qualitative properties.

[9] Hempel and Oppeheim (1948: 155-156).

[10] Recent debates regarding determinism also invoke the qualitative distinction. In particular, the question of whether determinism precludes alternative possibilities or only alternative *qualitative* possibilities is of considerable importance for the Hole Argument against substantivalism. For discussion, see Brighouse (1997) and Melia (1999).

2.2. Content and Attitudes

The qualitative distinction also plays a significant role in debates regarding semantic content. According to descriptivism, the semantic content of names and certain predicates are synonymous with definite descriptions that express only qualitative properties. One alleged moral of Kripke and Putnam's Twin Earth arguments is that descriptivism is false, since names and certain predicates, unlike any putatively synonymous descriptions, can divide individuals that are qualitatively indiscernible.[11] The qualitative distinction proves crucial here because, unless a restriction to qualitative properties is added to thesis of descriptivism, the view is immune to Kripke and Putnam's arguments. This is because descriptivists can appeal to descriptions that express non-qualitative properties like "the blahs on *Earth*" or "near *me*" thereby dividing qualitatively indiscernible individuals and kinds. For these reasons, the qualitative distinction plays an important role in formulating and interpreting various semantic theses.

2.3. Intrinsicality and Duplication

The qualitative distinction is also bound up with core metaphysical notions like *duplication* and *intrinsicality*.[12] On the received view, objects are duplicates if and only if they share all the same *qualitative* intrinsic properties. Accordingly, Langton and Lewis (1998: 334) hold that the concept of an intrinsic property is to be analyzed only when our focus is restricted to qualitative properties:

> So can we define an intrinsic property as one that is independent [of accompaniment or loneliness]? –Subject to some qualifications, yes; but not in full generality. A first qualification is that the proposed definition, and likewise all that follows, is to be understood as restricted to pure, or qualitative properties—as opposed to impure, or haecceitistic, properties.[13]

Here, the qualitative distinction earns its keep by allowing us to limit the scope of Langton and Lewis' proposed analysis to qualitative properties. In this way, the division between the qualitative and the non-qualitative is a crucial piece of metaphysical structure that affords the possibility of analyzing a restricted notion of intrinsicality and thereby illuminating closely related notions like duplication and supervenience.

2.4. Haecceitism

The qualitative distinction is indispensible for understanding the contentious modal thesis of haecceitism. According to haecceitism, some possible worlds are alike in all

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[11] See Kripke (1980) and Putnam (1975).

[12] On intrinsicality and duplication, see Lewis (1986: 61).

[13] Lewis (2001: 382) invokes the same restriction in his revised analysis of intrinsicality.

qualitative respects yet differ with respect to non-qualitative properties and relations.[14] Following Skow (2008: 99), consider two kinds of distinctively haecceitistic possibilities:

> Could my brother and I have switched qualitative roles? (My qualitative role is just the conjunction of all of my qualitative properties, including my relational qualitative properties.) Could things be just as they actually are, except that I do not exist while someone who does not actually exist plays the qualitative role I actually play? Someone who answers 'Yes' to either of these questions is a haecceitist. Someone who answers 'No' to both, and to other questions like these, is an anti-haecceitist.

Haecceitism has widespread consequences for the metaphysics of modality. For example, it generates a challenge to counterpart theory, according to which *de re* representation is to be analyzed in terms of qualitative resemblance relations. Since worlds that differ haecceitistically are qualitatively indiscernible, counterpart theory requires substantive revisions to accommodate haecceitistic possibilities without resorting to illicit non-qualitative counterpart relations.[15] And, without the qualitative distinction, neither haecceitism nor the relevant constraints on counterpart relations can be articulated.

2.5. Physicalism

Like intrinsicality and haecceitism, the qualitative distinction has significant consequences for the thesis of physicalism. Most notably, following Chalmers (1996), the proper formulation of physicalism—whatever it might be—is naturally restricted to qualitative properties.[16] To see why, notice that worlds that differ haecceitistically will differ regarding the total distribution of their properties—e.g., with respect to non-qualitative properties—yet agree with respect to all of their paradigmatic physical properties like *mass* and *charge*. So, if physicalism is not restricted to qualitative properties, a commitment to haecceitism entails that physical properties fail to provide a minimal supervenience base, which physicalism is commonly thought to require. The wrong conclusion to draw here is that haecceitism and physicalism are incompatible,

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[14] I set aside the considerable complications that arise in formulating haecceitism. Perhaps most notably, those who reject possible worlds must recast haecceitism as a thesis about maximal possibilities. See Skow (2008) for discussion.

[15] On the required modifications, compare Lewis (1968) and Lewis (1986). On non-qualitative counterpart theory, see Cowling (2013).

[16] Chalmers (1996: 367) defends anti-physicalism while restricting questions of physicalism to qualitative properties. He says, "I will always be considering worlds 'qualitatively,' and abstracting away from question of 'haecceity.' That is, I will count two worlds that are qualitatively identical as identical and will not be concerned with questions about whether individuals in those worlds might have different 'identities.'" On physicalism and haecceties, see Daly and Liggins (2010).

since this would badly misidentify the genuine conflict between physicalists and anti-physicalists. It would, for example, entail that the following possibilities, if accepted, entail the falsity of physicalism:

> In world *w*, all that exists are two iron spheres that are qualitatively indiscernible except for a single speck of dust resting on the sphere, Bruce. In world *w**, the qualitative facts are the very same except that a different sphere, Clark, has a speck of dust on it.

Since the question of whether such possibilities are genuine is orthogonal to the question of physicalism, we are better served to restrict the thesis of physicalism to the domain of qualitative properties. And, whether or not you share this view about the relation between physicalism and haecceitism, the qualitative distinction can again be seen to have notable connections to some of our chief metaphysical concerns.[17]

§3. Is There a Qualitative Distinction?

The previous section surveyed a few metaphysical issues that are importantly connected with the qualitative distinction. This section marks some working assumptions about the qualitative distinction and briefly discusses some views about the theoretical status of this distinction.

In what follows, I assume that the qualitative distinction is metaphysically substantive and tracks an objective distinction among properties. The qualitative distinction is therefore taken to be metaphysically unique rather than a cluster of heterogenous metaphysical distinctions that are variously labeled as "the qualitative distinction." This is no small assumption, but it is an especially natural one for this preliminary investigation into the qualitative distinction. Additionally, I assume that the qualitative distinction is exclusive and exhaustive, dividing all of the world's properties into the qualitative and the non-qualitative. While plausible, this simplifying assumption is also contentious and, of course, warrants more consideration than it can be afforded here.

Since the qualitative distinction is assumed to be substantive, various forms of deflationism and eliminativism can be set aside. According to eliminativist views, there is no qualitative distinction among properties, so our best metaphysical theories have no place for the putative division between qualitative and non-qualitative properties. The case against eliminativism is powerful. Not only must eliminativists implausibly deny there is any interesting difference between those properties Black's spheres share and those they fail to share, eliminativists must also deny the intelligibility of concepts like duplication and haecceitism, which presuppose the qualitative distinction. Given the preceding discussion of the significance of the qualitative distinction, eliminativism and the strange kind of conceptual blindness it requires are difficult to motivate.

Unlike eliminativists, deflationists retain the qualitative distinction but deny its metaphysical significance. On one version of deflationism, there is no univocal sense of

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[17] On physicalism and haecceties, see Daly and Liggins (2010).

'qualitative'. Instead, 'qualitative' tracks a varied assortment of metaphysical distinctions that crop up in different philosophical domains.[18] One line of argument in favour of deflationism would therefore show that 'qualitative' is deployed in divergent or inconsistent ways across different metaphysical domains. For this reason, the primary challenge for deflationists is to explain away the useful and apparently unified deployment of the qualitative distinction as presented in Section Two. And, while there is little evidence for deflationism, we can leave the prospects for deflationism open given that the substantiveness of the qualitative distinction has been taken as a working assumption.

Granted these assumptions, the nature of the qualitative distinction can be approached from one of two directions. We might target the notion of a *qualitative property* for analysis and understand *non-qualitative property* as its negation. (Again, I omit mention of relations for convenience's sake.) Alternatively, we might reverse the order of priority and proceed by analyzing *non-qualitative property*. Since it is unclear whether any substantive issues turn on which direction one opts for, we can remain neutral and proceed in somewhat broad strokes. The main question is therefore the following: What is required for properties to be qualitative or non-qualitative? Drawing on paradigm cases, we might also put the question as follows: What feature of *being red* entails that it is qualitative, and what features of *being Saul Kripke* entail that it is non-qualitative?

In what follows, I assume that a suitable answer to these questions and, in turn, a successful analysis of the qualitative distinction will provide jointly necessary and sufficient conditions for being a (non-)qualitative property.[19] So, given our preceding assumptions about the distinction, there are now two available stances: (i) *primitivism*, according to which there is a metaphysically substantive distinction, but that it cannot be properly analyzed without illicit circularity; and (ii) *reductionism*, according to which there is a metaphysically substantive distinction, but this distinction can be analyzed without circular appeal to the notion of a qualitative property or its cognates.

Primitivism, enjoys some promise, since the distinction between *redness* and *being Saul Kripke* strikes many as "metaphysically deep" and distinctions of this sort provide good candidates for theoretical primitives.[20] But, like any form of primitivism, its

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[18] Other versions of deflationism might argue that, while 'qualitative' tracks a single distinction, this distinction is, upon close scrutiny, so indeterminate as to be of no metaphysical interest.

[19] Methodological issues about the nature of philosophical analysis loom large here, but, in what follows, I assume that philosophical analysis aims at the provision of jointly necessary and sufficient conditions. For those who take our psychological representations or concepts to have an importantly different structure, this might seem methodologically objectionable. Still, opponents of this view of analysis ought to grant that attempts to provide necessary and sufficient conditions are of some epistemic value (e.g., by drawing out borderline cases) and suitable for a preliminary investigation of the present kind.

[20] Diekemper (2009: 1) endorses primitivism, claiming "[t]he distinction between a qualitative and a non-qualitative property is one that belongs to that family of philosophical distinction which,

plausibility turns on whether certain theoretical challenges can be met. First, all available reductionist alternatives must be shown inadequate, and, second, the distinction must be shown to be a suitable and useful primitive that we cannot reasonably dispense with. In the previous section, we saw that it would be difficult to do without the qualitative distinction, and, while some challenges to primitivism are considered below, my primary aim in subsequent chapters will be to show that extant reductionist proposals are inadequate. But, prior to taking up this challenge, it will be useful to catalogue some of the various kinds of properties that are plausibly counted as non-qualitative.

§4. Non-Qualitative Candidates

We can now lay the groundwork for evaluating reductive analyses of the qualitative distinction by considering candidate non-qualitative properties. To begin, let's consider four kinds of paradigmatic non-qualitative properties:

Haecceities: *Haecceities* like *being Saul Kripke* or *Socrateity* are paradigmatic non-qualitative properties associated with the identity of specific individuals like Saul Kripke and Socrates. Sometimes called "individual essences," haecceities are uniquely instantiable by a specific individual.[21]

Impure Properties: *Impure properties* like *being the father of Saul Kripke* or *being next to David Kaplan* are non-qualitative by virtue of their tie to specific individuals. It is unclear, however, precisely what kind of tie makes for a non-qualitative rather than qualitative property. For example, if Kripke is actually five feet tall, then *being the same height as Saul Kripke actually is* might reasonably be identified with the qualitative property *being five feet tall*. Despite this, it is uncontroversial that some impure properties are non-qualitative.[22]

Negative Haecceities: If *being Saul Kripke* is non-qualitative, it is plausible that *negative haecceities* like *being distinct from Saul Kripke* are similarly non-qualitative. Notice, for example, that the qualitatively indiscernible spheres, Bruce and Clark, differ with respect to the negative haecceities *being distinct from Bruce* and *being distinct from Clark*.[23] While such negative haecceities are less often discussed than haecceities, they enjoy a parallel metaphysical status, dividing individuals in a pattern that reflects the pattern in which haecceities are instantiated.

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though not admitting of analysis, can be made easily enough through the use of a loose definition and some intuitive examples."

[21] On individual essences, see Plantinga (1978: 132). I leave open whether haecceities include the unique non-qualitative properties of pluralities (e.g., *being the Rolling Stones*).

[22] The category of impure properties includes whatever impure relations there might be. And, while impure relational properties (e.g., *being taller than Fred*) and qualitative relations (e.g., *is five feet from*) are familiar, it controversial whether there are any impure relations. Cowling (2013) argues that, for substratum theorists, the relation *shares a bare particular with* is non-qualitative.

[23] On the metaphysics of negative haecceities or "anti-haecceities", see Williamson (2013: 270).

Disjunctive Haecceities: If *being Saul Kripke* and *being David Kaplan* are non-qualitative, it is plausible that there is a *disjunctive haecceity* of *being Saul Kripke or David Kaplan* that is similarly non-qualitative. Notice also that, if there were two additional qualitatively indiscernible spheres in Black's scenario, disjunctive haecceities would divide Bruce and Clark from their companion spheres without any of the spheres differing qualitatively.[24] So, just as haecceities and negative haecceities account for distinctions among pairs of individuals, disjunctive haecceities account for distinctions among more than two individuals.

Provided that one denies PII, haecceities are properly counted as non-qualitative.[25] And, for the reasons just noted, impure properties, negative haecceities, and disjunctive haecceities are all plausibly counted as non-qualitative. In addition to these properties, there is another family of properties that have a reasonable claim to being non-qualitative. And, while it is not a settled matter that such properties are non-qualitative, it will be helpful to bear in mind the broadest range of candidate non-qualitative properties

Tense and Modal Properties: Suppose, for a moment, that you accept both eternalism—roughly, the existence of non-present times—and modal realism—roughly, the existence of concrete, merely possible worlds—but you believe present and actual entities are fundamentally different from non-present and merely possible individuals.[26] In order to make sense of this distinction, you posit fundamental non-qualitative properties that divide what presently or actually exists from what non-presently or merely possibly exists. If these properties—*being present* and *being actual*—are qualitative, then there is a qualitative difference between any present or actual things and non-present or merely possible things. But, since present or actual things can be qualitatively indiscernible from non-present or merely possible things (e.g., in a world of eternal recurrence or across worlds that differ haecceitistically), such properties must be non-qualitative in kind. In addition, more common modal properties like *being possibly a donkey*, while perhaps constrained by qualitative features of the world, seem to make no contribution to the qualitative character of the world and might therefore e counted as non-qualitative.[27]

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[24] A commitment to disjunctive haecceities also suggests a commitment to conjunctive haecceities like *being Saul Kripke and David Kaplan*. Granted some controversial assumptions, these conjunctive haecceities might naturally be identified with the haecceities of pluralities.

[25] If PII is true, then, given some auxiliary assumptions, a haecceity like *Socrateity* can be identified with a massively disjunctive property that uniquely characterizes Socrates' qualitative profile across possible worlds.

[26] On a fundamental tense property of *being present*, see Zimmerman (2008). On a fundamental property of *being actual*, see Bricker (2006).

[27] If we count *being actually a donkey* as a modal property, not all modal properties have a plausible claim to being non-qualitative.

Along with the above properties, there are three additional kinds of properties that have a controversial claim to being non-qualitative. For present purposes, we can leave the qualitative status of these properties open, but it is worth marking them as properties that are potentially counted as non-qualitative:

Structural Properties: Some *structural properties* are bound up with facts about identity, distinctness, composition, coexistence and other structural facts about the world. Intuitively, these properties like *being distinct from something* or *being a part of something* contribute nothing to the "qualitative character" of the world. Some have therefore suggested that they are properly counted as non-qualitative.[28] At the same time, these structural properties do not depend upon any specific individual, and, in the case of *being self-identical*, never divide qualitatively indiscernible individuals. Their status as non-qualitative is therefore an open and difficult question for any view of the qualitative distinction.[29]

Mathematical Properties: As with structural properties, it is unclear what contribution mathematical properties of mathematical entities—e.g., *being even* or *having a unique successor*—might make to the qualitative character of the world. Mathematical properties are therefore potentially viewed as non-qualitative since they do not seem to ground qualitative resemblance relations between mathematical entities and are decidedly unlike paradigmatic qualitative properties like *mass* and *charge*.[30]

Species Properties: According to some, *species properties* like *tigerhood* behave like haecceities.[31] This is because Twin Earth cases suggest that species terms like 'tiger' function much like proper names. And, since proper names and their associated properties like *being Saul Kripke* divide qualitatively indiscernible individuals, there is some reason to believe that species terms and their associated properties like *tigerhood* might, in principled, do the same. Species properties might therefore be counted as non-qualitative given certain controversial assumptions about both the semantics of species terms and the nature of species in our best biological theories.

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[28] See Bricker (2006) for discussion of structural properties as non-qualitative properties.

[29] For most, structural properties are properties in only the abundant sense. For others, they lack even this status, since broadly logical properties and relations like identity enjoy no metaphysical status whatsoever.

[30] The status of mathematical properties is especially unclear given the diversity of views regarding mathematical entities. For example, if there are *sui generis* numbers, it is plausible that each has a unique non-qualitative haecceity. If, however, the subject matter of mathematics is purely structural, it is plausible that the status of mathematical properties will turn on the status of structural properties.

[31] Another line of argument for the non-qualitative status of species properties owes to the view that species are individuals and, as a consequence, the species property of *tigerhood* is something akin to the impure property of *being an appropriately distinguished part of the tiger-individual*. See Lange (1985) and Kripke (1980: 127-134) for discussion.

We have now surveyed various properties that are potentially counted as non-qualitative. In what follows, I assume that any view of the distinction that runs afoul of our core intuitions about these properties (e.g., by counting haecceities as qualitative) incurs a theoretical vice. I will leave open, however, whether a suitable view of the distinction should count structural, mathematical, or species properties as non-qualitative.

§5. Reductive Views of the Qualitative Distinction
We can now turn to the task of evaluating proposed reductive analyses of the qualitative distinction.

5.1. The Linguistic View
The first reductionist proposal we can consider aims to analyze the qualitative distinction in terms of some linguistic facts. Here, a natural starting point is a view suggested in Adams (1979).[32] And, while it is unclear whether Adams takes this view to be properly reductionist, he says the following:

> We might try to capture the idea by saying that a property is purely qualitative—a suchness—if and only if it could be expressed, in a language sufficiently rich, without the aid of such referential devices as proper names, proper adjectives and verbs (such as 'Leibnizian' and 'pegasizes'), indexical expressions, and referential uses of definite descriptions.[33]

This linguistic view does not tie the distinction to any particular language, natural or otherwise, but, rather, to possible languages that are "sufficiently rich." In this way, it avoids the problems that would arise from tethering the qualitative distinction to a particular language (e.g., expressive limitations that would preclude the expressibility of certain properties).[34] At the same time, this reductionist strategy draws on the familiar observation that paradigmatic non-qualitative properties are most readily expressible using certain types of linguistic items—e.g., by using proper names like 'Saul Kripke'. Given this connection between non-qualitative properties and certain linguistic items, a linguistic analysis can be formulated as follows:

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[32] Adams' exact view is somewhat unclear. In addition to a linguistic "definition", he also offers a second definition, but, since it explicitly appeals to non-qualitative "thisnesses" to define qualitative properties, such a view would constitute a form of primitivism.

[33] Adams (1979: 7).

[34] It is difficult to imagine that any given language is uniquely suited for analyzing the distinction with the potential exception of a Lagadonian language in which entities are their own names. On Lagadonian languages, see Lewis (1986: 145).

The Linguistic View: A property, *F*, is *qualitative* if and only if, for any possible and sufficiently rich language, *L*, *F* is expressible in *L* without employing any items of linguistic type, *T*, where *T* includes proper names, proper adjectives and verbs, indexicals, and so on.

There are a number of reasons why this or any comparable linguistic view is untenable. Some concern the specifics of the proposal. For example, the specification of the relevant linguistic types is incomplete, given that we lack a catalogue of all possible linguistic types, but this incompleteness is also unavoidable, since we cannot rule out by fiat the possibility of other linguistic types that express non-qualitative properties [35] Furthermore, it is unclear how, given that we are concerned with all possible languages, one might exhaustively specify which linguistic types are properly included within *T*. In addition, without providing some account of what is intended by a "sufficiently rich" possible language, the proposal fails to give genuinely reductive conditions for determining whether properties are qualitative or not.

The more serious worries about this and other linguistic views concern its compatibility with metaphysical realism. Since the linguistic view employs language to analyze what would seem to be a mind-independent and perhaps fundamental feature of reality, the putative order of explanation seems mistaken. For the metaphysical realist, the notion that language—something plainly mind-*dependent*—determines the scope of this distinction—a matter plainly mind-*independent*—will seem either hostile to realism or implausibly optimistic about the concordance between language and the world.

Above, I assumed that we have good reason to believe there is a substantive metaphysical distinction between qualitative and non-qualitative properties. Granted this assumption, we have good reason to reject the linguistic view. At the same time, those sympathetic to the linguistic view might insist that alternative reductionist proposals are doomed to fail because the qualitative distinction is inseparable from certain linguistic facts. Fortunately, even realists about the distinction who reject the linguistic view can respect the tie between linguistic facts and the qualitative distinction: for the realist, certain linguistic facts—e.g., that a property is most readily expressible using a proper name—provide useful guidance in determining which properties are non-qualitative even while these linguistic facts fall far short of providing a reductive analysis of the distinction.

Having made the case against the linguistic view, I now turn to reductionist proposals that employ distinctively metaphysical notions like modality, grounding, and naturalness.

5.2. The Modal View

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[35] Note that this version of the linguistic view entails that absolutely inexpressible properties are non-qualitative. If, however, being non-qualitative is relative to a language, the expressive limitations of different languages requires a far more complicated treatment. Sorting out the status of inexpressible properties is therefore an additional burden for any linguistic view.

A natural strategy for analyzing the qualitative distinction is to appeal to modal facts regarding properties. More specifically, we might hope that the unique necessary connection or modal dependence of non-qualitative properties upon specific individuals distinguishes them from qualitative properties. For example, Hawley (2009) considers one view of the qualitative distinction drawn in explicitly modal terms:

> 'Qualitative' more usually picks out those properties and relations whose instantiation does not require the existence of any specific object: thus *composing something* usually counts as qualitative, while *composing the Eiffel Tower* is non-qualitative.[36]

Hawley's remarks do not aim at analysis of the qualitative distinction, but it is plausible that a view along these lines is the leading candidate for distinguishing non-qualitative properties[37]. A first pass at a genuine modal analysis of the qualitative distinction might therefore run as follows: a property, *F*, is *non-qualitative* if and only if, for some specific individual, *a*, necessarily, *F* is instantiated only if *a* exists. Unfortunately, this account is too narrow, counting paradigm non-qualitative properties as qualitative. Consider, for example, the disjunctive haecceity of *being Saul Kripke or being David Kaplan*. Since this property can be instantiated in worlds without Kripke or without Kaplan, but not without both, it does not depend upon the existence of both individuals, but rather on the existence of either Kripke or Kaplan. So, while we cannot use this first pass analysis to reduce the qualitative distinction, we can build upon it by using plural quantification to accommodate the non-qualitative status of disjunctive haecceities:

> **The Modal View:** a property *F* is *non-qualitative* if and only if, for some individual or individuals, *the as*, necessarily, *F* is instantiated only if *the as* exists.

Is the modal view a plausible analysis of the qualitative distinction? Probably not. Let me begin by noting three problems. First, consider a possible world where Saul Kripke does not exist. At such a world, all individuals instantiate the negative haecceity, *being distinct from Saul Kripke*. Since the modal view can only use the existence of a specific individual to distinguish non-qualitative properties, this property will either be qualitative or uninstantiable in worlds without Kripke. But, since it is plausible that

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[36] Hawley (2009: 102).

[37] Rosenkrantz (1979) defends a version of the modal view, according to which base impure properties are those with concrete constituents while other impure properties are defined in terms of their relations to these base properties. Along with certain of the challenges noted in this section, the appeal to concreteness in Rosenkrantz's account seems to preclude abstract entities like nations and novels from having haecceities.

individuals in worlds without Kripke instantiate *being distinct from Saul Kripke*, the biconditional in the *analysans* of the modal view fails in the left-to-right direction.[38]

Second, the modal view implausibly requires that the tense and modal properties discussed in Section Three are qualitative. These properties, which some hold to distinguish the present and the actual from the non-present and merely possible, do not depend upon the existence of any specific individuals. For this reason, the modal view cannot accommodate the non-qualitative status of these properties. It therefore rules out the possibility of present or actual individuals being qualitatively indiscernible from non-present or non-actual individuals. And, while the relevant views about tense and modality for which these problems arise are controversial, this is an immodest and therefore undesirable consequence of the modal view.

Third, like other theses that attempt to individuate properties in exclusively modal terms, the modal view encounters problems in accommodating necessary existents. Suppose that some individual, Fido, exists necessarily. Since the modal view holds properties to be non-qualitative when they have the existence of a particular individual as a necessary condition, the necessary existence of Fido—a trivial necessary condition for the instantiation of any property—guarantees the objectionable result that all properties are non-qualitative.[39]

The three preceding difficulties with the modal view are significant, but there is a broader issue that the modal view also raises. Since it appeals exclusively to modality to discern qualitative from non-qualitative properties, it will be unable to accommodate distinctions some might hope to draw between cointensive (alternatively, necessarily coextensive) properties, some of which might be held to differ in their qualitative status. This is a vice shared by a more sophisticated view that also appeals to modal resources. Here, I postpone discussion of this problem until Section 5.5, where I argue that it afflicts both the modal view and a more sophisticated supervenience view. But, having outlined

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[38] This argument turns on what Kripke (1980: 3) waives as "fussy considerations deriving from the fact that *x* [in our present case, Saul Kripke] need not have necessary existence." It therefore faces objections from defenders of Serious Actualism, according to which an object, *x*, has a property *F* at a world *w* if and only if *x* exists at *w*. Interestingly however, the instantiation of *being distinct from Kripke* by individuals in Kripke-less worlds is not, on its own, a violation of Serious Actualism given that these individuals do exist at the world in question. For this objection to violate Serious Actualism, it must be the case that Kripke himself instantiates the property *being identical to Kripke* at a Kripke-less world. To accommodate Serious Actualism, we can allow that individuals can instantiate *being distinct from Kripke* at a world without Kripke existing or instantiating *being identical to Kripke* at that world. Alternatively, we can follow Salmon (1990) in rejecting Serious Actualism, and allow that individuals have properties and relations like *being thought about, being distinct from* or *being nonexistent* at worlds in which they do not exist. Finally, one might, as I prefer, accept possibilism, which largely avoids these problems.

[39] Perhaps this problem arises even if no specific individual is a necessary existent. For example, if we assume there is a plurality of all possible individuals and that plurality exists at a world so long as some of the plurality exists. The necessary existence of this maximal plurality will also trivialize the above formulation by virtue of a being a necessary condition for the instantiation of any property.

some initial concerns about the modal view, I now turn to reductionist approaches that help themselves to different analytic resources.

5.3. The Grounding View

Claims of dependence are pervasive in metaphysics. Properties are said to depend upon their bearers. Wholes are said to depend on their parts. Sets are said to depend upon their members. One way to make sense of these claims is to posit a primitive relation of metaphysical dependence—*the grounding relation*.[40] Since a commitment to this primitive relation would provide a theoretical tool for analyzing core metaphysical notions like substance and fundamentality, there is ample reason to consider whether it might deliver an analysis of the qualitative distinction as well. Along these lines, we might hold that a property is *non-qualitative* if and only if it is grounded in a specific individual.

Intuitively, the grounding view succeeds in capturing the characteristic dependence of non-qualitative properties on specific individuals that the modal view could not. Even so, it faces several pressing objections. Suppose, for example, that Spot is the only material object, and further suppose, as seems plausible, that Spot would therefore ground the property of *being a material object*. Granted these assumptions, the grounding view would count the property *being a material object* as non-qualitative, but, intuitively, this is incorrect. How, then, can the grounding view correctly count *being Spot* as non-qualitative without also counting *being a material object* as non-qualitative? Here, we can amend the account suggested above as follows:

> **The Grounding View**: a property *F* is *non-qualitative* if and only if it is grounded in a specific individual and could not be grounded by any other individual.

So formulated, the grounding view relies on both modal resources as well as a primitive grounding relation. And, while it can overcome the challenge above, it faces several problems. In the remainder of this section, I note four.

First, it is not obvious that the grounding relation is of the appropriate metaphysical kind to analyze the qualitative distinction. Crucially, the grounding view requires that properties are grounded by individuals. But, if one holds grounding to be a relation only between, say, propositions or facts or between properties and other properties, the proposed analysis simply won't get off the ground.[41] The grounding view therefore requires a liberal conception of the possible *relata* of the grounding relation.

Second, the grounding view provides an unsatisfactory account of negative haecceities like *being distinct from Saul Kripke*. While Kripke grounds *being Saul Kripke* in virtue of instantiating this property, it is implausible that Kripke also grounds his negative haecceity, since, of necessity, he does not instantiate this property. Similarly, it

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[40] For some, grounding claims subsume supervenience claims. In this subsection, my interest is in those who would posit a *sui generis* grounding relation. On grounding, see Schaffer (2009) and Rosen (2010).

[41] On the proper *relata* of the grounding relation, see Rosen (2011).

is implausible to hold that all other individuals ground the property *being distinct from Saul Kripke.* Indeed, such a view would require an oddly monadological metaphysics in which everything grounds the negative haecceity of everything else. It seems, then, that the framework of grounding, while apt for understanding haecceities, does poorly in making sense of other candidate non-qualitative properties.

Third, the grounding view also provides an unsatisfactory account of certain impure properties like *being between Saul Kripke and David Kaplan.* If the grounding relation holds of necessity, neither Kripke, Kaplan, whatever falls between them, or the sum of all these individuals will be plausible candidates for grounding this property, since each of these entities could exist without anything being between Kripke and Kaplan.[42] Since, on their own, none of these individuals necessitates the instantiation of *being between Saul Kripke and David Kaplan*, there is no natural candidate for being the ground of this property. Again, the grounding view seems to fall short of furnishing us with a suitable account of all paradigm qualitative properties.

Fourth, problems arise regarding the qualitative status of the grounding relation itself. If it is non-qualitative, then it must be grounded in a specific individual. But suppose that there is a grounding relation that holds between two properties (e.g., a mental property and a physical one). Since this grounding relation is not itself grounded in a specific individual, it must be qualitative; however, it is far from clear that the grounding relation is itself properly viewed as qualitative in kind. And, while there may be a plausible account the grounding view can provide here, this much is clear: employing the grounding relation raises difficult and potentially costly questions about its own relation to the qualitative distinction.

A range of problems and questions arise for the grounding view. I've noted only four here. Given the diversity and character of these problems, I take it that the prospects for the grounding view are rather dim even while it nicely captures the characteristic dependence of haecceities on individuals. For those committed to a primitive grounding relation, this insight can still be accommodated without endorsing the grounding view, since individuals can be held to ground their haecceities without thereby holding that the qualitative distinction is reducible to facts about what grounds what. Having made the case against the grounding view, I turn to two remaining proposals for reducing the qualitative distinction.

5.4. The Definability View

For those who accept the distinction between sparse and abundant properties, not all properties are created equal. Only a certain number of sparse properties carve nature at its joints.[43] These properties are often claimed to play several unique theoretical roles. They are held to form a supervenience base that fixes the distribution of other properties, to place constraints on the interpretation of language and thought, and to

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[42] Whether the grounding relation holds of necessity is a matter of some controversy. For discussion, see Schaffer (2009) and Rosen (2010).

[43] See Lewis (1983) and (1986) for discussion and defense of the indispensability of naturalness.

serve as the value of the predicates of our ideal physical theory. Furthermore, they are standardly held to guarantee qualitative resemblance between objects that instantiate them.

The view of properties defended in Lewis (1983) and elsewhere identifies the properties that play these and other important theoretical roles as *natural properties*. Among these natural properties, Lewis distinguishes certain properties as *perfectly natural* insofar as they are the ultimate grounds of resemblance and the "deepest joints in nature."[44] In addition to these sparse properties, Lewis is a realist about properties abundantly conceived, but holds that abundant properties need not make for objective similarity between objects nor figure into our best physical theory. For Lewis, abundant properties are classes of individuals. As such, any individuals, no matter how gerrymandered or dissimilar, will share some abundant property by virtue of being all and only members of a particular class.[45]

For Lewis, the distinction between the natural and non-natural properties is of paramount metaphysical significance and is plausibly taken as a primitive, given its usefulness in a diverse and impressive range of philosophical analyses.[46] It is reasonable, then, to look to the notion of *naturalness* (or *perfect naturalness*) for an analysis of the qualitative distinction. In this section, I consider the prospects for a reductive analysis that distinguishes non-qualitative properties in virtue of their relation to natural or perfectly natural properties. Specifically, I take up a suggestion from Lewis according to which qualitative properties are distinguished by virtue of a certain kind of definability in terms of perfectly natural properties. To introduce this view, it is useful to begin with the following remarks from Lewis on non-qualitative properties:

> I am no haecceitist; but I hold that (on one legitimate conception of properties among others...) there is a property for any set whatever of possible individuals. This property I identify with the set itself. So we get properties that are in no way qualitatively delineated, and some of these are haecceities of this- and other-worldly individuals. A unit set of an individual is one especially strict sort of haecceity. Also, for any individual and any counterpart relation, there is the set of that individual

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[44] I ignore issues about whether we should prefer a comparative primitive of *more natural than* to the primitive *perfect naturalness*.

[45] A small range of these classes will align with sparse properties, having as members all and only individuals that share a given natural or perfectly natural property. In contrast, all other sets are *merely* abundant insofar as they are classes of individuals whose members share no common sparse property.

[46] Lewis (1983) considers whether we might analyze the distinction between natural and non-natural properties in terms of sharing tropes or universals. On such a view, the distinction is no longer primitive, but turns on facts about tropes and universals. Here, the definability view can be presented without assuming either of these views.

together with all its counterparts, and this is a less strict sort of haecceity.[47]

This passage marks Lewis' commitment to the existence of haecceities. But, since haecceities are neither natural nor perfectly natural, they are properties only according to the abundant conception. So understood, haecceities are classes of individuals, where "strict haecceities" are the unit sets of worldbound individuals and "less strict haecceities" are classes of individuals drawn from distinct possible worlds. (For Lewis, this distinction is crucial, given his denial of numerical identity of individuals across possible worlds.) Building upon this understanding of haecceities, Lewis elsewhere gives the following characterization of qualitative indiscernbility:

> Two things are *indiscernible* iff they have the same intrinsic and extrinsic qualitative character. Extrinsic qualitative character, wherein duplicates may differ, consists of extrinsic properties that are, though not perfectly natural, still somewhat natural in virtue of their definability from perfectly natural properties and relations. Indiscernibles share all their somewhat natural properties. They do not, of course, share all their properties without exception…[48]

Lewis' remarks suggest a novel view of the qualitative distinction that appeals directly to the concept of perfect naturalness. This view is committed to two main theses. First, objects are qualitatively indiscernible if and only if they share all the same somewhat natural properties. Second, a property is somewhat natural if and only if it is definable from perfectly natural properties. Consequently, objects are qualitatively indiscernible if and only if they share all the same properties that are definable from perfectly natural properties. In turn, this conclusion delivers the following analysis of the qualitative distinction:

> **The Definability View**: a property *F* is qualitative if and only if it is definable from perfectly natural properties.

The prospects of the definability view turn largely on what Lewis intends by "definability." Here, I take it that the relevant notion is one according to which a property, understood as a class, is definable if and only if it is the product of standard set-theoretic operations like union and intersection on some classes of individuals (in this case, the sets of individuals sharing perfectly natural properties). Consider an example: if we (implausibly) suppose that *being red*, *being blue*, and *being yellow* are perfectly natural properties, the property, *being a primary color*—alternatively, *being red or blue or yellow*—will count as qualitative, since it can be constructed by taking the union

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[47] Lewis (1986: 225).
[48] Lewis (1986: 63).

of our initial perfectly natural properties. Similarly, if we also suppose (again, implausibly) that the property *being round* is perfectly natural, *being red and round* will count as qualitative since it is the intersection of two perfectly natural properties.

Granted this understanding of definability, Lewis' account faces a serious challenge: why believe that all non-qualitative properties are indefinable? Although the definability view crucially presupposes that this is so, it is an unduly controversial assumption.

Consider, for example, that, although Lewis accepts the possibility of qualitatively indiscernible individuals *within* worlds, he is agnostic about whether there are qualitatively indiscernible worlds.[49] But, if there are no qualitatively indiscernible worlds, then unit sets—Lewis' "strict haecceities"—are readily definable. For example, the unit set of a world that consists of a single electron can be straightforwardly defined using the uncontroversially definable properties *being an electron* and *being spatiotemporally isolated*. The definability view is therefore extensionally inadequate unless certain controversial metaphysical assumptions are granted. Moreover, if all unit sets are indeed definable, then absolutely all sets are definable, and the definability view entails a radical anti-haecceitism, according to which there are no non-qualitative properties.

More generally, there is no well-motivated constraint on definability that will preclude the definability of non-qualitative properties but also ensure the definability of all intuitively qualitative properties. Lewis cannot, for example, claim that non-qualitative properties are only infinitarily definable, since it is unclear that all qualitative properties are definable using only finitely many operations. For this reason, the definability view must appeal to a concept of "appropriate definability" in its proposed analysis:

> **The Definability View***: a property *F* is qualitative if and only if it is *appropriately* definable from perfectly natural properties.

This revision to the definability view avoids the problems noted above, but faces serious obstacles. First, while it is open to the defender of the definability view to simply adopt appropriate definability as a theoretical primitive, this is ideologically costly and no obvious improvement over primitivism about both naturalness and the qualitative distinction. Second, the prospects for reducing the notion of appropriate definability are not promising. Circularity ensues if we claim that properties are not appropriately definable by virtue of being non-qualitative. Proposals that would appeal to the mere number of operations performed on perfectly natural properties will prove inadequate in light of logical equivalences. Other proposals that turn on definability within a specific language will encounter the same problems as the linguistic view canvassed above. Perhaps the best bet is to invoke the concept of naturalness and hold that a property is appropriately definable if and only if it can be defined using exclusively

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49 See Lewis (1986: 220-247).

natural operations. [50] While some will balk at extending naturalness from properties to operations, even those who accept this extension should remain unsatisfied, since the problems for the definability view arise even if we use only the most natural operations of union and intersection.

In light of these problems, the definability view fails to provide a suitable reductive analysis of the qualitative distinction. Deflationists may, however, find something appealing about the view. If it is understood as merely stipulating a conception of "qualitative" for a limited range of purposes, there is little reason to worry about whether it succeeds in its reductive ambitions. At the same time, if the work that the definability view is being used for—most notably, characterizing qualitative indiscernibility—crucially requires that we distinguish haecceities and other suitable properties as non-qualitative, there is reason to believe the definability view is profoundly limited in its usefulness, given that its verdicts on these issues are either unclear or mistaken. Notably, however, there seems to be a more plausible account of the qualitative distinction owing to Lewis, which avoids the problems of the definability view but still appeals to perfectly natural properties. [51] We can consider the prospects for this alternative reductionist proposal in the next section.

5.5. The Supervenience View

Some remarks in Lewis (2003) suggest an alternative reduction of the qualitative distinction in terms of naturalness. Specifically, this analysis, which holds that non-qualitative properties are distinguished by virtue of failing to supervene on natural properties, is suggested in the following remarks:

> Likewise, when we said that less-than-fundamental properties of things supervened on the fundamental properties and relations of things, we meant less-than-fundamental qualitative properties. Again our supervenience thesis was not meant to apply to non-qualitative 'properties' determined by miscellaneous classes of possible individuals.

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[50] On the prospects for extending a metaphysical commitment to naturalness beyond properties, see Sider (2012: 85-87).

[51] Lewis' apparent indecision about precise nature of the qualitative distinction is notable, given his careful attention to the distinction between the natural and the non-natural. Indeed, as noted above and as argued in the next section, both of Lewis' suggested analyses of the qualitative distinction potentially lead, when coupled with the rejection of qualitatively indiscernible worlds, to the denial that there are any non-qualitative properties. Given Lewis' agnosticism about qualitatively indiscernible worlds, this suggests that he has comparatively little interest in preserving a metaphysically robust distinction between qualitative and non-qualitative properties. While this comports with his rejection of non-qualitative relations in the analysis of *de re* modality, it squares poorly with the fact that a suitable account of qualitative distinction is presupposed by his proposed analyses of intrinsicality.

> Again, what at first seemed to be a substantive supervenience thesis turns into a definition, this time of 'qualitative property'.[52]

If we take Lewis to intend natural properties by his talk of "fundamental properties," the resulting view holds non-qualitative properties to be those properties that fail to supervene upon the natural properties. Whether Lewis officially endorses such a view is unclear. Even so, it warrants closer scrutiny and has been endorsed by others. For example, Bricker (1996) formulates and endorses precisely this supervenience view: "the qualitative supervenes upon the natural: fixing the natural properties and relations suffices to fix all the qualitative properties and relations."[53]

The supervenience view draws upon the resources of the modal view and the definability view, employing modality—in the form of supervenience—as well as naturalness to analyze the qualitative distinction. Intuitively, it holds that worlds that share the same distribution of natural properties are like Black's spheres, Bruce and Clark. They and their parts share all the same qualitative properties and relations and differ only with respect to their non-qualitative ones.

Prior to considering challenges to the supervenience view, it will be useful to clarify its proper formulation. In particular, we need to fix upon the relevant kind of supervenience relation between the qualitative and the natural. The most plausible candidate relation is that of global supervenience, which holds, roughly, that any worlds alike with respect to subvening *B*-properties are alike with respect to supervening *A*-properties. More specifically, global supervenience comes in two primary forms and delivers two competing versions of the supervenience view. The first candidate employs weak global supervenience:[54]

> **Weak Version**: A property *F* is *qualitative* if and only if *F* is such that, for any worlds, w_1 and w_2, if there is a natural property-preserving isomorphism between w_1 and w_2, then there is an *F*-property-preserving isomorphism between them.

The second candidate employs strong global supervenience:

> **Strong Version**: A property *F* is *qualitative* if and only if *F* is such that, for any worlds, w_1 and w_2, every natural property-preserving isomorphism between w_1 and w_2 is an *F*-property-preserving isomorphism.

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[52] Lewis (2003: 26) draws a distinction between qualitative and non-qualitative propositions (understood as properties of entire worlds), where the latter are miscellaneous classes of worlds that might divide qualitatively indiscernible worlds. He then offers these remarks as a possible reply to concerns about propositions whose truth does not supervene on being. Since he also considers an alternative reply that dispenses with qualitatively indiscernible possible worlds and remains neutral between these replies, it is not clear which is Lewis's "considered view."

[53] Bricker (1996: 227). See also McDaniel (2007: 250)

[54] Here, I largely follow Bennett (2004) on the formulation of global supervenience theses.

Crucial to both the Weak and Strong Version is the notion of a *ψ-preserving isomorphism*: a one-one isomorphism μ between the inhabitants of w_1 and w_2 is ψ-preserving if and only if, for every ψ-property F, Fx in w_1 if and only if $F\mu(x)$ in w_2. Intuitively, then, property-preserving isomorphisms ensure sameness of the pattern of distribution of a relevant class of properties. And, as I will now show, Weak and Strong Versions differ in significant respects.

In order to mark their differences, consider a world that exhibits two-way eternal recurrence such that there are qualitatively indiscernible "epochs" laid end-on-end and extending infinitely far into the past and future.[55] Let us further suppose that we occupy a certain epoch, Sooner, which is followed by a distinct epoch, Later.

If we formulate the supervenience view using the Strong Version, the existence of eternal recurrence worlds shows why non-qualitative properties fail to supervene upon natural properties.[56] As Sider (1999) notes, this is because, within an eternal recurrence world, there are many isomorphisms that preserve natural properties but fail to preserve non-qualitative properties. For example, the isomorphism that maps the properties of Sooner onto Later (or any other preceding or subsequent epoch) will preserve natural properties but fail to preserve non-qualitative properties, since the individuals occupying Later have different haecceities than we do. So, if we accept the Strong Version and reject PII, which allows for worlds with eternal recurrence, the supervenience view delivers the correct verdict that haecceities are non-qualitative.

In contrast, if we accept the Weak Version, we require not only that PII as it applies to individuals *within* worlds is false, but that PII as it applies to *entire worlds* is false. Put differently, the Weak Version of the supervenience view is plausible only if there are qualitatively indiscernible worlds. To see why, notice that, on the Weak Version, non-qualitative properties supervene upon natural properties if there is a single isomorphism between worlds that preserve the pattern of distribution for the natural and the non-qualitative. And, if there are no qualitatively indiscernible worlds, then the trivial isomorphism between each epoch in a world of eternal recurrence and that very same epoch will ensure that the non-qualitative supervenes upon the natural. If, however, there are two qualitatively indiscernible worlds of eternal recurrence, then it is not true that, for all qualitatively indiscernible worlds, there is a non-qualitative property preserving isomorphism. For this reason, the Weak Version requires qualitatively indiscernible worlds where different non-qualitative properties are instantiated in order to generate a failure of weak global supervenience of the non-qualitative on the natural.

Although the Weak Version requires qualitatively indiscernible worlds in order to avoid errantly counting all properties as qualitative, the Strong Version also requires qualitatively indiscernible worlds to avoid a more specific problem. Consider the actual

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[55] See Sider (1999) for discussion of these points.

[56] As Sider (1999) notes, any worlds that exhibit the relevant kind of symmetry like those including Black's spheres suffice for this purpose.

world, Cosmo. Since Cosmo is an individual, there is reason to believe Cosmo has a haecceity. But, if there is no world qualitatively indiscernible from Cosmo, then Cosmo's haecceity, *being Cosmo*, is qualitative according to the Strong Version. For this reason, no plausible account of the supervenience view can avoid the commitment to qualitatively indiscernible worlds.

Granted qualitatively indiscernible worlds, we can now consider whether the supervenience view is extensionally adequate. In this regard, the supervenience view generates a puzzle regarding disjunctive haecceities. Recall that our intuitive conception of non-qualitative properties holds that each haecceity is non-qualitative and, since disjunctive haecceities are built out of haecceities, they, too, should count as non-qualitative. Consider, however, the disjunction of the haecceities of all possible individuals that are qualitatively indiscernible from you, strewn across an equivalence class of qualitatively indiscernible worlds. Since the property of *being one of these myriad individuals* is a disjunctive haecceity, there is some reason to believe it is non-qualitative, but, according to the supervenience view, this disjunctive haecceity is, in fact, qualitative.

For many, the puzzle just raised does not count merely against the supervenience view, but against any merely intensional rather than hyperintensional conception of properties.[57] In particular, some are likely to hold that there are two cointensive yet distinct properties here: the disjunctive haecceity of all your qualitatively indiscernible counterparts, and the qualitative property *being of such and such a qualitative profile*. Notice, however, that no supervenience-based view has the resources to distinguish these properties, so some choice must be made regarding the qualitative status of the relevant disjunctive haecceity. But, given countervailing intuitions, it seems that neither option is particularly attractive for those committed to the intensional conception. It seems, then, that the present puzzle either jeopardizes the extensional adequacy of the supervenience view or the intensional conception of properties it presupposes.[58]

A further challenge for the supervenience view arises from a tension between our concepts of laws, naturalness, and the qualitative distinction. On one conception of naturalness, there is fundamental tie between naturalness and nomicality such that any properties that figure into fundamental laws will therefore be natural. If, however, we acknowledge the possibility of *de re* laws—i.e., laws that are irreducibly connected to specific individuals—then the haecceities of these individuals will figure into laws and will therefore emerge as qualitative.[59] In this way, the supervenience view and other views that invoke naturalness either immediately rule out the possibility of *de re* laws or surrenders the connection between naturalness and laws that makes naturalness an especially useful primitive. Since neither option is attractive, we have an additional reason to reject the supervenience view.

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[57] On properties and hyperintensionality, see Eddon (2011).

[58] Given that the modal view can distinguish properties only up to cointensiveness, the same concerns apply to that view as well.

[59] See Tooley (1977) for discussion of *de re* laws.

The supervenience view faces some notable challenges. It delivers an unsatisfying account of disjunctive haecceities. It also raises a puzzle about the connection between laws and naturalness. In addition, the supervenience view comes with two kinds of burdensome commitments. Ontologically, it requires a commitment to qualitatively indiscernible worlds, which seems to be an implausible consequence of the mere acceptance of the qualitative distinction. Ideologically, the supervenience view also requires a commitment to naturalness and an intensional rather than hyperintensional conception of properties. And, while this second commitment is shared by any views that use modal notions to analyze the qualitative distinction, a view that is in principle compatible with a hyperintensional conception of properties is likely preferable to the supervenience view. For this reason, I will now turn to my defense of primitivism, which avoids the ontological cost of qualitatively indiscernible worlds and enjoys the theoretical virtue of neutrality regarding naturalness and the hyperintensional individuation of properties.

§6. Primitivism
The burden of any form of primitivism is to show that all proposed reductive analyses are inadequate. The preceding discussion has attempted to discharge this burden by arguing that all extant proposals for analyzing the qualitative distinction are unsuccessful. And, since we cannot do without the qualitative distinction, we ought to view the distinction as metaphysically primitive. Like all forms of primitivism, this ideological commitment is taken on reluctantly. In particular, it is accepted only after certain additional constraints on the admission of primitive distinctions or brute facts are met. Consider, for example, the plausible constraints suggested by Markosian (1998) in discussing whether a concept or distinction should be viewed as brute or primitive:

> It is clear that there must be some concepts that are "brutal," i.e., such that facts involving their instantiation do not obtain in virtue of any other facts; for to suppose otherwise is to commit oneself to either an infinite regress or else a vicious circle. And it seems to me that possessing the following characteristics makes a concept a likely candidate for being assigned the status of brutality in our theorizing: (i) being relatively easy to grasp on an intuitive level, (ii) being such that there seem to be clear-cut cases of both instantiation and non-instantiation, and (iii) being such that no acceptable account of what it is in virtue of which some *xs* instantiate that concept seems to be forthcoming.[60]

There is evidence that primitivism about the qualitative distinction satisfies all these conditions. First, philosophers have deployed the qualitative distinction in a range of areas and, given the general agreement about the scope of the distinction, there is reason to believe it is easily grasped. Second, we have surveyed paradigmatic non-qualitative

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[60] Markosian (1998: 218).

properties (e.g., haecceities) as well as paradigmatic qualitative properties (e.g., *charge*) that are as clear-cut instances as one could reasonably demand. Third, we have seen that no analysis provides informative, jointly necessary and sufficient conditions for being either qualitative or non-qualitative. Taken together, the case for primitivism about the qualitative distinction is a compelling one.

Before concluding, it will be useful to consider two challenges to primitivism. The first challenge holds that the case for primitivism fails because the applications of the relevant primitive have not been shown to produce suitable ideological gains. In response to this challenge, we should note that not all defenses of primitivism require the extension of a primitive to new theoretical domains. Instead, some defenses of primitivism simply appeal to well-established connections between a potential primitive and other familiar theories and analyses. Indeed, we might distinguish *ambitious* defenses of primitivism that show how a proposed primitive can be put to use in new analytic domains from *conservative* defenses of primitivism, which simply point out the standing analytic significance of a proposed primitive. Here, my conservative defense of primitivism turns on the well-established significance of the qualitative distinction as noted in Section Two. Given its importance within metaphysics and elsewhere, no ambitious defense is required since the qualitative distinction cannot be dispensed with.

The second challenge alleges that, once the distinction is taken as a primitive, it becomes either wholly mysterious or predicts an immediate and decisive verdict on all outstanding questions about which properties are (non-)qualitative. In response to this challenge, we should note that primitivists about modality are not committed to modal skepticism or modal omniscience by virtue of their primitivism. So, while primitivism holds that some concept or distinction is analytic bedrock, it does not thereby commit us to any substantive theses about the means through which we acquire knowledge about the proper application of this primitive. Primitivists can therefore hold a range of views about the extent of our knowledge of the extension or intension of primitive concepts and the distinctions that underlie them. So, while little has been said about how we acquire knowledge of the qualitative distinction, this challenge is a perfectly general one for metaphysicians rather than a particular objection to primitivism about the qualitative distinction. There are, for example, a range of potential views regarding the epistemology of the qualitative distinction that might be combined with primitivism just as there are range of views about the epistemology of modality that might be combined with modal primitivism. While no such view has been defended here, a commitment to primitivism does nothing to undermine the prospects for knowledge of the qualitative distinction.

§7. Conclusion

We have now surveyed a number of views about the qualitative distinction. As I have argued, all extant reductionist proposals are inadequate, so primitivism about the distinction is our best remaining option. Although we are reluctant primitivists, this commitment to primitivism should not be viewed as a kind of philosophical defeat. To be sure, boiling down concepts and distinctions to other concepts and distinctions is a

profitable undertaking, but ensuring that we have the proper primitive concepts or distinctions is no less important.[61]

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