Identity and Ground

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Many philosophical inquiries concern identity criteria. Here are two examples: in event metaphysics, we want to know what makes one event identical with or distinct from another. When discussing personal identity, we want to know the conditions under which one person is identical with or distinct from another. If we have identity criteria close at hand, we can make progress in philosophical debates. For example, if we have a criterion for event identity, we can approach the question of whether mental events are identical with or distinct from physical events, knowing what features would render them identical or distinct. If we have an identity criterion for persons, we can figure out whether you can survive a journey through a transporter machine that disassembles your atoms completely and then puts them back together again.

This chapter concerns the relation between ground and identity and distinctness facts. After discussing some preliminaries in section I, we turn to formulations of identity criteria in terms of ground in sections II and III. In sections IV-VI, we explore reasons for taking at least some identity and distinctness facts to be fundamental. In section VII, we discuss specific proposals for grounding identity and distinctness facts.

I. Preliminaries

Identity facts are ones like World War I = World War I and distinctness facts are ones like The Louvre ≠ The Prado. For our purposes, any fact involving the identity relation (or predicate) counts as an identity fact; although, most identity facts will take the form $x = y$ (where x and y are objects). Every fact involving a negation of the form $\sim x = y$ (often written as $x \neq y$) counts as a distinctness fact for our purposes. In this chapter, we will primarily discuss two varieties of identity and distinctness facts. 1. Quantificational Identity and distinctness facts: These involve quantifiers. Examples include, $(\forall x)(x = x)$, $(\exists x)(x = \text{Angela Merkel})$, and $(\exists x)(\exists y)(x \neq y)$. And 2. Individual Identity and distinctness facts: These involve individual objects and no quantifiers. Examples include, Angela Merkel = Angela Merkel, and Angela Merkel ≠ Emmanuel Macron. I will employ a fact-based account of ground in what follows, where ground is taken to be a relation holding among facts. I will also treat a fact as fundamental when it is ungrounded.

II. Identity criteria and ground.

Philosophers often provide identity criteria in terms of necessary and sufficient conditions: $x = y$ if and only if condition P obtains. We will call identity criteria of this form, "N&S criteria." [i] We can formulate identity criteria in terms of grounds as well: if $x = y$, then some fact P grounds $x = y$. We call identity criteria of this form, "grounding criteria". Let's consider an N&S criterion for set identity. For sets x and y:

Set-Identity$_{n\&s}$: $x = y$ iff $(\forall z)(z \in x \equiv z \in y)$

In other words, set x is identical with set y if and only if x and y have all and only the same members. We can also formulate a grounding criterion for set-identity:

Set-Identity$_g$: if $x = y$, then $x = y$ is grounded in the fact: $(\forall z)(z \in x \equiv z \in y)$.

Why choose a grounding criterion over an N&S criterion? Some philosophers, like Kit Fine (2016), maintain that we should favor grounding criteria if we want to pinpoint *in virtue of* what entities are identical or distinct. Since *in virtue* of is an asymmetric notion, the N&S criteria cannot tell us in virtue of what objects are identical or distinct. They only provide what Fine calls "material conditions" for identity. N&S criteria do not elucidate any direction of dependence. Set-Identity$_{n\&s}$ merely tells us that if $(\forall z)(z \in x \equiv z \in y)$ obtains then $x = y$, and if $x = y$, then $(\forall z)(z \in x \equiv z \in y)$ obtains. Alternatively, since ground strives to capture a metaphysical notion of *in virtue of*, it is better suited for the task at hand. Set-Identity$_g$ tells us that if $x = y$, $x = y$ holds in virtue of $(\forall z)(z \in x \equiv z \in y)$.

Given that the grounding theorist typically thinks that if P grounds Q then P metaphysically explains Q [ii], grounding criteria will be attractive to those who want a metaphysical explanation of why entities are identical or distinct. We often look for a metaphysical explanation when we confront puzzling cases about identity. For instance, when we encounter the thought experiment in which Man A enters a transporter and two psychological and physical duplicates of him, Man B and Man C, emerge, we want to explain in virtue of what Man A is identical with or distinct from Man B. Well, to be fair, first we want to know *whether* Man A is identical with or distinct from Man B (and similarly for the relation between Man A and Man C). But to support that verdict, we want to know *why* Man A is identical with or distinct from Man B. We want a metaphysical explanation of this identity or distinctness fact. Thus, a grounding criterion of personal identity would be valuable for us, if we could find one.

What is the relationship between grounding criteria and N&S criteria? N&S criteria do not typically entail grounding criteria as we have seen above, but do grounding criteria entail N&S criteria? It depends on how we formulate grounding criteria. Set-Identity$_g$ will establish that if $x = y$ then $(\forall z)(z \in x \equiv z \in y)$, which is the necessity condition of Set-Identity$_{n\&s}$. Since Set-Identity$_g$ states that if $x = y$, then $(\forall z)(z \in x \equiv z \in y)$ grounds $x = y$, it follows that $(\forall z)(z \in x \equiv z \in y)$ must obtain if $x = y$ does. What about sufficiency? If $(\forall z)(z \in x \equiv z \in y)$, then will $x = y$ hold? Set-Identity$_g$ does not yield this result automatically. The criterion does not rule out that $(\forall z)(z \in x \equiv z \in y)$ obtains yet x is distinct from y. Set-Identity$_g$ says only that *if* $x = y$, then $(\forall z)(z \in x \equiv z \in y)$ grounds $x = y$. But if x is distinct from y, we could still have $(\forall z)(z \in x \equiv z \in y)$. At least, Set-Identity$_g$ has not ruled this out.

However, we can construct a grounding criterion that would entail the sufficiency condition of the N&S criterion. For sets x and y:

Set-Identity$_{g2}$:

(1) If $x = y$, then $x = y$ is grounded in the fact $(\forall z)(z \in x \equiv z \in y)$. And,

(2) If $x \neq y$, then $x \neq y$ is grounded in the fact $\sim(\forall z)(z \in x \equiv z \in y)$.

Here, if $x \neq y$, then $x \neq y$ is grounded in $\sim(\forall z)(z \in x \equiv z \in y)$. So $\sim(\forall z)(z \in x \equiv z \in y)$ obtains if $x \neq y$ does. The sufficiency condition of Set-Identity$_{n\&s}$ is thereby established.

When formulating identity criteria, there is also a question of what kind of identity and distinctness facts are involved. To clarify, Fine (2016) discusses two options. First, identity criteria may tell us, for *any* objects x and y, in virtue of what they are identical. Fine calls this a "general" criterion and describes it thusly: "[the general criterion] tells us, for any two particular objects of the sort in question, what makes them the same" (Fine, 2016, p.4). We can clarify the form of general criteria clearer using universal quantifiers as follows:

$(\forall x)(\forall y)(\mathrm{Set}(x)\ \&\ (\mathrm{Set}(y) \supset$ if $x = y$, then $x = y$ is grounded in $(\forall z)(z \in x \equiv z \in y))$

Another alternative is to formulate identity criteria in terms of arbitrary objects. Following Fine, we can call a grounding criterion involving arbitrary objects, "generic" criterion. Instead of stating that for any sets x and y if $x = y$ then $x = y$ is grounded in $(\forall z)(z \in x \equiv z \in y)$, we claim that for the *arbitrary sets x and y*, if $x = y$ then that fact is grounded in $(\forall z)(z \in x \equiv z \in y)$. The generic criterion for sets would then pose an answer to the question: "in virtue of what are these two sets the same, i.e. what it is about the two arbitrary sets (considered as representative individual sets, not as objects in their own right) that would make them the same?" (Fine 2016, p. 13)

Fine favors generic criteria over general criteria. General criteria show us how to ground individual identity and distinctness facts, the instances of the universal generalization. But Fine thinks the question of what grounds the fact that individual sets are identical with themselves is just a "pseudo-problem—one that we cannot take seriously as answering to any real issue about the identity of sets." (Fine 2016, p.12) When we provide a metaphysical explanation of set-identity, we do not care about explaining in virtue of what {Socrates} is identical with {Socrates}. We do not care about {Socrates} in particular. Instead, we want a generic criterion that that will tell us in virtue of what any two arbitrary sets are identical.

III. When (if ever) are identity and distinctness facts fundamental?

Is it truly just a pseudo-problem to consider in virtue of what {Socrates} is identical with itself? If such facts do not hold in virtue of other facts, are we pressured to take them fundamental? In this section, we turn our attention to identity and distinctness facts that do not involve arbitrary objects. We will now examine reasons to take at least some identity and distinctness facts to be fundamental or ungrounded.

IV. Fundamental identity and distinctness facts in the book of the world.

Certain philosophers have views upon which at least some identity and distinctness facts count as fundamental. Theodore Sider's (2011) view in *Writing the Book of the World* takes certain quantificational identity and distinctness facts to be fundamental; although, he does not understand fundamentality in terms of ground.

Sider treats the following notions as joint-carving: "first-order quantification theory (with identity), plus a predicate symbol $\in$ for set-membership, plus predicates adequate for fundamental physics, plus the notion of structure." (2011, 292-3) Sider characterizes facts as fundamental when they involve purely joint-carving notions. Fundamental facts will include ones like $(\exists x)Rx$, $(\exists x)(Rx \vee Lx)$, etc. where R and L are joint-carving predicates, and $\exists$ is a joint-carving existential quantifier. Since the identity predicate appears to be joint-carving, identity and distinctness facts like $(\exists x)(\exists y)(x = y)$, $(\exists x)(\exists y)(x \neq y)$ and $(\exists x)(\exists y)((Px \& Qy) \& (x \neq y))$ will count as fundamental if P and Q are joint-carving predicates and $\exists$ is a joint-carving existential quantifier.

Does the grounding theorist also have this basis for treating certain identity facts as fundamental? Grounding theorists typically ground logically complex facts in their simpler components. For example, grounding theorists do not commonly take disjunctions, conjunctions, or existential generalizations to be fundamental. Conjunctions and disjunctions are grounded in their conjuncts and disjuncts, respectively. Existential generalizations are commonly grounded in their instances. Many grounding theorists will thus deny that every fact containing only joint-carving predicates, and the connectives and quantifiers of first order predicate logic plus identity counts as fundamental. It does not seem as though Sider's rationale for treating certain identity and distinctness facts as fundamental carries over into a grounding context. The identity and distinctness facts t Sider treats as fundamental, such as $(\exists x)(\exists y)(x \neq y)$ and $(\exists x)(\exists y)(x = y)$, will be non-fundamental for the grounding theorist who claims these facts are grounded in their instances, $a \neq b$ and $a = a$, respectively.

Of course, the grounding theorist can reject that quantificational facts are grounded in their instances, in which case she may be more sympathetic to Sider's view.[iii] But if the grounding theorist is not willing to go this route, the question will become: do we have good reasons to treat individual identity and distinctness facts, like $a \neq a$ and $a = b$—the ones which ground $(\exists x)(\exists y)(x \neq y)$ and $(\exists x)(\exists y)(x = y)$—as fundamental? How can we ground these facts? We will discuss proposals for grounding individual identity and distinctness facts in section VII.

V. Fundamental identity facts and totality

If totality facts are fundamental, they may represent another kind of fundamental identity fact. Totality facts are "that's all" facts, intended to settle how many objects (or certain types of objects) exist. Philosophers invoke totality facts when accounting for certain universal or negative facts. For example, consider a world containing three black ravens—Alberta, Boris, and Carlos—and nothing else. If we want to fully ground the fact that all ravens are black, we will ground $(\forall x)(Rx \supset Bx)$ in each of its instances, $Ra \supset Ba$, $Rb \supset Bb$, and $Rc \supset Bc$ (where R stands for *is a raven*, B stands for *is black*, and a b and c pick out Alberta, Boris and Carlos). Those instances will not fully ground $(\forall x)(Rx \supset Bx)$ if we require that full grounds necessitate what they ground (see Skiles 2015 as well as Skiles's entry in this volume for discussion of grounding necessitation). The instances do not necessitate that all ravens are black. There is another possible world in which Alberta, Boris and Carlos exist as black ravens, and they coexist with Daryl, a white raven. In such a world, not every raven is black even though $Ra \supset Ba$, $Rb \supset Bb$, and $Rc \supset Bc$ obtain.

In order to fully ground $(\forall x)(Rx \supset Bx)$, we also need the fact that there are no ravens we omitted. To accommodate this, we may claim that $(\forall x)(Rx \supset Bx)$ is fully grounded in its instances together with a "totality" or "that's all" fact. The nature of totality facts is obscure. One way to formulate a totality fact is as a special kind of universal generalization. We can formulate a totality fact for the world containing only three ravens as follows:

$(\forall x)(x = a \vee x = b \vee x = c)$

Now, we will fully ground $(\forall x)(Rx \supset Bx)$ in $Ra \supset Ba$, $Rb \supset Bb$, and $Rc \supset Bc$ together with $(\forall x)(x = a \vee x = b \vee x = c)$. This universal generalization is then taken to be fundamental. If we were to treat this $(\forall x)(x = a \vee x = b \vee x = c)$ as non-fundamental, we would face a serious problem. If we treat this totality fact to be non-fundamental, we would presumably want to fully ground it. If full ground requires grounding necessitation, then it is unclear how we can provide full grounds for $(\forall x)(x = a \vee x = b \vee x = c)$ without invoking a totality fact. We would need to appeal to another totality fact which tells us that a b and c are the only objects in the universe, but this is exactly the fact we are trying to ground. Thus, the better option is to treat $(\forall x)(x = a \vee x = b \vee x = c)$ as fundamental. Given that $(\forall x)(x = a \vee x = b \vee x = c)$ is an identity fact, this is another option for taking some identity facts to be fundamental.

Nevertheless, there are several ways to resist positing fundamental totality facts like $(\forall x)(x = a \vee x = b \vee x = c)$. One option is to deny that full grounding requires grounding necessitation. In this case, universal generalizations could be fully grounded in their instances without the need for a totality fact at all. A second option is to deny that totality facts are universal generalizations. Taking totality facts to be fundamental universal generalizations invites the uncomfortable question, why are these universal generalizations ungrounded while others are grounded (at least partially) in their instances? Fine (2012) suggests that totality facts have a different structure; they are primitive facts of the form of $T(a, b, c)$. Even though $T(a, b, c)$ may be logically equivalent to $(\forall x)(x = a \vee x = b \vee x = c)$, the two facts will not have the same grounds. $(\forall x)(x = a \vee x = b \vee x = c)$ is grounded in its instances while $T(a, b, c)$ is not. If we take this option, the totality fact may not count as an identity or distinctness fact at all.

VI. Can Fundamental Identity and Distinctness Facts help distinguish metaphysical possibilities?

A third reason to posit fundamental identity and distinctness facts is to account for certain kinds of metaphysical possibilities. For example, we will consider a scenario popularized by Max Black (1952), the "sphere world." The sphere world contains two qualitatively identical spheres, Castor and Pollux, in an otherwise empty universe. It is difficult to determine on what basis Castor and Pollux are distinct. They are both silver, they both have a mass of 5kg, they are both 10 meters from one another, and so on. How can we explain the distinctness of the spheres?

If we take certain identity and distinctness facts to be fundamental, we can sidestep the question of what makes the two spheres distinct. They just *are* distinct; this is a brute fact. We can posit a fundamental distinctness fact obtaining in the sphere world to accommodate this. Shamik Dasgupta (2009) recommends this approach. The fundamental distinctness fact in the sphere world could take the following form:

$(\exists x)(\exists y)((Px \& Py) \& x \neq y)$

where P is a predicate that picks out the full qualitative profile of each of the spheres. The fan of individual identity and distinctness facts could also adapt his proposal and posit fundamental distinctness facts of the form: Castor ≠ Pollux or (P(Castor) & P(Pollux)) & Castor ≠ Pollux instead.

The attractiveness of taking facts like $(\exists x)(\exists y)((Px \& Py) \& x \neq y)$ or Castor ≠ Pollux to be fundamental hinges on the idea that we have no basis upon which to distinguish the spheres in Max Black's famous scenario. In the next section, we will consider whether this truly is the case. We will investigate proposals which attempt to ground the distinctness of Castor and Pollux.

VII. Proposals for grounding identity and distinctness facts.

We have looked at three sources of motivation for treating some identity and distinctness as fundamental. Now we will consider four options for taking identity and distinctness facts to be grounded. Burgess (2012), Donaldson (2015), Fine (2012) all discuss proposals for grounding individual identity facts involving objects (as opposed to properties, facts, events, etc.) I will explain the proposals as well as some of the obstacles they face. In what follows, I will consider the proposals as offering grounds for individual identity and distinctness facts, like Castor = Castor and Castor ≠ Pollux. However, even if the reader denies that individual identity and distinctness facts are grounded (recall Fine's view in section II), these proposals may still be interesting interpreted as providing generic identity criteria.

One way to ground identity and distinctness facts is by appealing to the properties objects share. More specifically, we can appeal to one half of Leibniz's Law, the Principle of the Identity of Indiscernibles in order to offer a metaphysical explanation of identity and distinctness facts (see Della Rocca (2005)). While this proposal has trouble accommodating the sphere world from the previous section, it will be worthwhile to examine the proposal more closely to see why it is problematic.

The Properties Proposal:

(1) If $x = y$, then $x = y$ is fully grounded in the fact that $(\forall P)(Px \equiv Py)$. And,
(2) If $x \neq y$, $x \neq y$ is fully grounded in the fact $(\exists P)(Px \& \sim Py) \vee (\exists P)(\sim Px \& Py)$

We should restrict the class of properties to qualitative ones—properties that do not involve the identities of individual objects. If we invoke facts involving non-qualitative properties (properties like *is identical with b* or *is distinct from a*) to ground individual identity and distinctness facts, we could ground the fact that a ≠ b in the fact that b has the monadic property *is identical with b* while a does not have that property. This would render the account trivial. We will also violate irreflexivity if the fact that b has the monadic property *is identical with b* is grounded in b's standing in the binary identity relation to b.

While we can just restrict the class of properties to "qualitative" ones that do not involve the identities of particular objects, a big problem will arise for this proposal as a result. This proposal will not accommodate the metaphysical possibility of distinct yet qualitatively identical objects in an otherwise empty world, i.e. the sphere world discussed in the previous section. We lack the grounds for the distinctness of the two qualitatively identical spheres. In fact, since $(\forall P)(P(\text{Castor}) \equiv P(\text{Pollux}))$ obtains, the grounds for Castor = Pollux obtains. If the grounds necessitate what they ground, this should establish that Castor = Pollux, which conflicts with the set-up of the scenario.

The second proposal appeals to facts about the existence of objects in order to ground identity and distinctness facts. Burgess (2012, 90) suggests that identity facts at first "seem to be nothing over and above the relevant existential facts." Perhaps we can ground identity and distinctness facts in the existence of objects.

The Existence Proposal:

(1) If $x = y$, then $x = y$ is fully grounded in the fact x exists. And,
(2) If $x \neq y$, $x \neq y$ is fully grounded in the plurality of facts: x exists, y exists.

One advantage of the Existence Proposal over the Properties Proposal is that it accounts for the distinctness of the Max Black spheres. In the possible world where only Castor and Pollux exist, Castor $\neq$ Pollux is grounded in the two facts: Castor exists, Pollux exists. Castor = Castor is grounded in the single fact, Castor exists.

Burgess (2012) explores a version of The Existence Proposal and points out a troubling feature. If the fact that Castor exists has the logical form $(\exists x)(x = \text{Castor})$ then Castor = Castor is fully grounded in the fact that $(\exists x)(x = \text{Castor})$. And if existentially quantified facts are grounded in their instances, $(\exists x)(x = \text{Castor})$ is grounded in Castor = Castor, yielding a violation of irreflexivity.

The proponent of the Existence Proposal can avoid this result in a few different ways: 1. They can deny the transitivity or irreflexivity of ground, 2. They can deny that existential generalizations are grounded in their instances, or 3. They can deny that existence facts are always existential generalizations. I will set options 1 and 2 aside and explore option 3. Instead of thinking about existence quantificationally, perhaps we should think of existence as a monadic property of objects. In this case, Castor exists will have the form of an atomic fact, E(Castor). As we have no reason to think E(Castor) will be grounded in the fact that Castor = Castor, we can avoid a potential violation of circularity by claiming that identity facts like Castor = Castor are grounded in facts like E(Castor).

The advocate of this alternative should say more about the grounds of facts like E(Castor) on this picture. After all, if E(Castor) is at least partially grounded in $(\exists x)(x = \text{Castor})$ we will face the same circularity. If E(Castor) is not grounded in this way, we should explain how existential-property facts and existential generalizations relate to one another (see Fine (2012) for discussion).

A third alternative is to ground identity and distinctness facts in facts concerning parthood (see Burgess 2012[iv]). Perhaps x is identical with y when x is part of y and y is part of x. This approach requires us to take the notion of part to be more fundamental than that of identity. Here is one way to formulate the parthood proposal, where the predicate O picks out the relation *is part of* .

The Parthood Proposal:

(1) If $x = y$, $x = y$ is fully grounded in the conjunctive fact: Oxy & Oyx. And,
(2) If $x \neq y$ then $x \neq y$ is fully grounded in the fact ~ Oxy v ~Oyx

This proposal can distinguish everyday objects we encounter: the Coca Cola bottle is distinct from the cheeseburger because neither is part of the other. They do not even share any parts in common. And the fact that the cheeseburger is an improper part of itself will ground the fact the cheeseburger is identical with itself. While the bottle and the cheeseburger are intuitively mereological fusions made up of proper parts, the Parthood Proposal is supposed to work for mereological atoms as well. While mereological atoms have no proper parts, they have themselves as improper parts.

This proposal can also distinguish Castor and Pollux in the sphere world: Castor is not part of Pollux nor is Pollux part of Castor. So both disjuncts are satisfied in the grounds of Castor ≠ Pollux. But the parthood proposal is definitely not for everyone. Ted Sider resists defining identity in terms of parthood. While he does not discuss ground, his concerns may carry over into a discussion of grounding criteria. Sider states:

> "[C]onsider the objection that adopting parthood in fundamental theories allows the elimination of identity from ideology via the definition "$x = y =_{\text{df}} x$ is part of *y* and *y* is part of *x*". The savings in ideological parsimony would be outweighed by increased complexity in the laws, which I take to include laws of logic and metaphysics. The logical laws governing '=' must now be rewritten in terms of the proposed definition, making them more complex; and further, the laws of mereology will be needed." (Sider 2013, fn. 10)

Sider thinks if we understand identity in terms of parthood, we will have to rewrite the logical laws in terms of mereological notions, and this revision will be much more complex than the versions we have involving identity. This added complexity is problematic if we favor simpler theories.

The Parthood Proposal will also face resistance from some (but not all) mereological nihilists. The mereological nihilist denies that objects have proper parts. Under one version of mereological nihilism, only mereological atoms exist, and they are improper parts of themselves. This view appears to be compatible with the Parthood Proposal: every atom is an improper part of itself and not a part of any distinct atoms. Other versions of mereological nihilism cannot accept the Parthood Proposal. Consider a version of mereological nihilism which denies the existence of parthood relations from the outset. This mereological nihilist will also claim that the only objects that exist, fundamentally speaking, are mereological atoms; yet, they will deny that the atoms are parts of themselves because they deny that anything stands in the parthood relation. The proponent of this version of mereological nihilism cannot use The Parthood Proposal to generate the correct verdicts about identity and distinctness.

The fourth and final proposal we will consider is whether identity and distinctness facts are zero-grounded. A fact is zero-grounded when it is not grounded in further facts, but it is not ungrounded either. Fine describes the distinction between being ungrounded and being zero-grounded:

> "There is a...distinction to be drawn between being zero-grounded and ungrounded. In the one case, the truth in question simply disappears from the world, so to speak. What generates it... is its zero-ground. But in the case of an ungrounded truth...the truth is not even generated." (2012, 48)

Fine then considers taking identity facts to be zero-grounded:

> "But in other cases—as with Socrates being identical to Socrates or with Socrates belonging to singleton Socrates—it is not so clear what the contingent truths might be; and a plausible alternative is to suppose that they are somehow grounded in nothing at all." (2012, 48)

Tom Donaldson (2017) explores taking certain mathematical identity facts to be zero-grounded as well. We can formulate a version of the Zero-Ground Proposal as follows:

The Zero-Ground Proposal$_1$:

(1) If x = y, then x = y is zero-grounded.

Identity facts are grounded on this proposal even though there are no facts which ground them. The distinction between being ungrounded and being zero-grounded is significant because, were we to take identity facts to be ungrounded, we would be pressured to treat them as fundamental. Since the Zero-Ground Proposal$_1$ maintains that identity facts are grounded, they are presumably non-fundamental.

While Fine and Donaldson are primarily concerned with identity facts, we could extend the Zero-Ground Proposal$_1$ to accommodate distinctness facts (Although it is not clear that the reasons for treating identity facts as zero-grounded apply to distinctness facts as well).

The Zero-Ground Proposal$_2$:

(1) If x = y, then x = y is zero-grounded.

(2) If $x \neq y$, then $x \neq y$ is zero-grounded.

With the added clause for distinctness, the Zero-Ground Proposal$_2$ can accommodate the sphere world. Castor ≠ Pollux is zero-grounded. Unlike the other proposals, the Zero-Ground Proposal$_2$ maintains that identity facts and distinctness facts have the same grounds. Castor = Castor and Pollux = Pollux are also zero-grounded. This is not necessarily problematic, but it is not yet clear that this proposal yields a satisfactory metaphysical explanation of why objects are distinct. If we were looking for a basis upon which to distinguish objects like Castor and Pollux, then I am not sure the Zero-Grounding Proposal$_2$ provides it. The distinctness of Castor and Pollux is metaphysically explained on the Zero-Grounding Proposal$_2$—but not on the basis of any facts.

All of these proposals for grounding identity and distinctness facts have issues in need of further examination. There is a lot of philosophical room left to explore when questioning whether and how to ground identity and distinctness facts. The aim in this chapter is not to advocate formulating identity criteria in terms of ground, nor is it to convince the reader that some identity and distinctness facts must be grounded. Instead, I hope to have provided a panoply of options open for investigation. My hope is that the reader, equipped with her own metaphysical predilections, will gain a sense of which avenues she can pursue.

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[i] We also often witness a modal analog of N&S criteria: □[x = y if and only if condition P obtains]. We will only discuss non-modal N&S criteria in what follows.

[ii] See Martin Glazier’s contribution to this volume for discussion of the connection between ground and metaphysical explanation.

[iii] See Rosen (2010) for discussion of reasons to take certain universal generalizations as fundamental and Shumener (2017) for further discussion of treating generalizations as fundamental.

[iv] See Smid (2017) as well; although, he is not concerned with ground in his paper.