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## Neutral Relations Revisited

Fraser MACBRIDE<sup>†</sup>

### ABSTRACT

Do non-symmetric relations apply to the objects they relate *in an order*? According to the standard view of relations, the difference between  $aRb$  and  $bRa$  obtaining, where  $R$  is non-symmetric, corresponds to a difference in the order in which the non-symmetric relation  $R$  applies to  $a$  and  $b$ . Recently Kit Fine has challenged the standard view in his important paper ‘Neutral Relations’ arguing that non-symmetric relations are *neutral*, lacking direction or order. In this paper I argue that Fine cannot account for the application of non-symmetric relations to their relata; so far from being neutral, these relations are inherently directional.

### 1. Introduction

Russell introduced the doctrine that asymmetrical relations come into the world imbued with a direction, or what he called a ‘sense’, in the following terms: ‘By difference of sense I mean, in the present discussion at least, the difference between an asymmetrical relation, and its converse. . . . Its existence is the source of series, of the distinction of signs, and indeed of the greater part of mathematics’ (*The Principles of Mathematics*, Part IV ‘Order’, §218). According to this doctrine, it is of the very nature of an asymmetrical relation to run *from* one relata *to* another where its converse runs in the opposite direction. Thus, where, for example, the relation *greater than* runs from  $x$  to  $y$ , its converse *less than* runs from  $y$  to  $x$ . Russell identified the directions, or senses, of asymmetrical relations as the source of order in the world. Objects form series – ordered rather than unordered collections – because asymmetric relations (such as *greater than*) run one way, rather than another, amongst the objects they relate.

The doctrine that asymmetric relations, or more generally, non-symmetric relations<sup>1</sup>, are essentially directional, was destined to become the standard view amongst analytic philosophers. However, Kit Fine has recently challenged the standard view in an important paper ‘Neutral Relations’ (hereafter *NR*), bringing about a radical shake up of our thinking about relations, and offering a quite different account of how order arises in the world.<sup>2</sup> According to Fine, non-

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<sup>1</sup> A relation  $R$  is symmetric iff whenever  $x$  bears  $R$  to  $y$ ,  $y$  bears  $R$  to  $x$ . By contrast, A relation is non-symmetric iff  $R$  fails to be symmetric. Asymmetric relations are a subspecies of non-symmetric relations:  $R$  is asymmetric iff whenever  $x$  bears  $R$  to  $y$ ,  $y$  does not bear  $R$  to  $x$ .

<sup>2</sup> See Fine 2000, 1–33; see also Fine 1999.

symmetric relations do not run one way rather than another, but simply hold *between* the objects they relate; non-symmetric relations are *neutral*, lacking significant direction or sense.

It is my hope in this essay to clarify the arguments that carry Kit Fine to this non-standard conclusion, and evaluate whether he succeeds in providing a genuine competitor to other accounts of non-symmetric relations.

## 2. A puzzle about order

What motivates Fine to overturn the standard view of non-symmetric relations is a basic puzzle about order (*NR*, 3–7). It is a puzzle generated by rudimentary reflection upon a non-negotiable fact about non-symmetric relations – the fact that non-symmetric relations *differentially apply* to the objects they relate. What this means is that non-symmetric relations are capable of holding between the objects they relate in a plethora of distinct ways. Since, for a non-symmetric binary  $R$ ,  $aRb$  may obtain in the absence of  $bRa$ , there are two ways in which  $R$  may hold of  $a$  and  $b$ . For example, there are two ways in which *greater than* may hold of  $x$  and  $y$ : either  $x > y$  or  $y > x$ . More generally, there are six ways in which a ternary non-symmetric relation may hold between three objects, and so on.

Once it is recognised that non-symmetric relations differentially apply, it seems an entirely innocuous step to account for this fact by saying the following. Non-symmetric  $R$ , for example, applies to the objects  $a$  and  $b$  *in a given order*, so the difference between  $aRb$  and  $bRa$  obtaining corresponds to a difference in the order in which  $R$  applies to  $a$  and  $b$ . In making this step we embrace the standard view of non-symmetric relations, the view according to which order is an essential feature of the way in which non-symmetric relations apply to the objects they relate.

The ideological admission that non-symmetric relations apply to objects in an order results in a distinctive ontological consequence of the standard view. If a non-symmetric binary relation  $R$  applies to  $a$  and  $b$  (in that order), a converse  $R^*$  may be defined as the relation that applies to  $b$  and  $a$  (in that different order). Now it would be arbitrary to admit the existence of  $R$  but not  $R^*$ . For there are no principled grounds for distinguishing between a relation and its converse – (e.g.) *right* and *left*, *up* and *down*, *before* and *after* – and affirming that it is really the former, rather than latter, that genuinely exists (or *vice versa*). So we are committed to the existence of  $R^*$ , if we are already ontologically committed to  $R$ . But, according to the standard view, non-symmetric relations apply to the objects they relate in an order, and *ex hypothesi*, a non-symmetric relation and its converse apply to these objects in different orders. It follows, by the Diversity of the Dissimilar, that  $R$  must be distinct from  $R^*$ . Therefore, if we embrace the standard view, we are ontologically committed to both non-symmetric relations *and* their converses.

In this way we are easily led from (i) recognition that non-symmetric relations differentially apply, to (ii) the standard view that it is a primitive feature of non-symmetric relations that they apply to the objects they relate *in an order*, and thereby (iii) the consequent inclusion of converse relations in our ontology.

However, the inclusion of converse relations in our ontology threatens to overpopulate reality, conflicting with what are, apparently, deep-seated metaphysical intuitions. Following Fine, let us employ the generic expression ‘completion’ for whatever arises from the saturation of a relation by the objects it relates – whether completions are conceived as states of affairs, situations, facts or propositions. Suppose that the cat is on the mat. It follows that the mat is underneath the cat. But there are not, it appears, two distinct completions in the world corresponding to these two statements. For, apparently, one and the same state of the cat and the mat suffices to make it true that the cat is on the mat *and* that the mat is underneath the cat. Once we have made it the case that the cat is on the mat, no separate metaphysical mechanism is required to ensure that the mat is also underneath the cat. In other words, it is natural to think that the completion that results from the saturation of the non-symmetric relation *being on top of* is identical to the completion that results from the saturation of its converse *being underneath*. This is no special feature of the completion at hand. It is also natural to think that *the French Revolution’s being before the American Revolution* is the same completion as *the American Revolution’s being after the French Revolution*, *Mont Blanc’s being higher than the Matterhorn* is the same completion as *the Matterhorn’s being lower than Mont Blanc*, and so on. Garnering these intuitions together, we thus arrive at the general principle that any completion of a non-symmetrical relation is identical to a completion of its converse. Call this principle, *Identity*.

Now, it is also natural to think that completions have a unique composition, resulting from the saturation of just one relation by its terms. This is because we naturally conceive of completions as complexes (metaphysical molecules) of the objects, properties and relations that compose them. Consequently, it appears to us, the completion that results from the saturation of one relation cannot be identical to the completion that results from the saturation of a different relation. These completions, so far as our intuition goes, can no more be identical than completions that arise from different collections of objects saturating the same relation, no more than a chemical molecule may be composed of different collections of atoms. So no single completion can result from the saturation of two distinct relations. Where appearances suggest otherwise, it is really only the saturation of one relation that gives rise to the completion in question. Call this second principle *Uniqueness*.

Let us return to the cat sitting patiently on the mat. *Identity* dictates that *the cat’s being on the mat* is the very same completion as *the mat’s being under the*

*cat.* But, if this is one and the same completion, *Uniqueness* dictates that there can be only one relation that gives rise to it. So the non-symmetric relation implicated in the former description of this completion must be identical to the converse relation implicated in its latter description (*being on top of = being underneath*). But this identity conflicts with the standard view of non-symmetric relations that entails non-symmetric relations cannot be identical to their converses (*being on top of  $\neq$  being underneath*).

It follows that our metaphysical intuitions about completions cannot be respected whilst adhering to the standard view of non-symmetric relations, and the inclusion of converse relations in our ontology that view entails. This is because their inclusion results either in: (a) the proliferation of completions that, according to *Identity*, aren't there; or (b) distinct relations composing the same completions, that, according to *Uniqueness*, aren't there either. Whether (a) or (b), the inclusion of converse relations in our ontology threatens to overpopulate reality.

It will serve us well for future purposes to appreciate, and fix firmly in our minds, the general structure of the tension that Fine uncovers in our basic thinking about relations and the completions to which they give rise.<sup>3</sup> There are three premises.

*The Standard View:* A non-symmetric relation is distinct from its converse

*Identity:* Any completion of a relation is identical to a completion of its converse.

*Uniqueness:* No completion results from the saturation of two distinct relations.

Fine constructs the following *reductio ad absurdum* to show that these premises cannot be held true together (*NR*, 5):

<sup>3</sup> Fine's argument is anticipated, in different ways, by Russell and Armstrong. In 1913 Russell rejected his 1903 treatment of order because he became impressed by the need to respect the following intuition: 'Looking away from everything psychological, and considering only the external fact in virtue of which it is true to say that A is before B, it seems plain that this fact consists of two events A and B in succession, and that whether we choose to describe it by saying "A is before B", or by saying "B is after A" is a mere matter of language . . . It might be supposed that every relation has one proper sense, i.e. that it goes essentially *from* one term to another . . . [but] The order is introduced by the words or symbols used in naming the complex, and does not exist in the complex itself' (Russell 1913, 85–87). Armstrong also rejects the standard view of order, but does so because of a perceived pattern of logical equivalence, rather than an appeal to intuition: '*a*'s having *R* to *b* is logically equivalent to *b*'s having the converse of *R* to *a*. There is therefore just one state of affairs in virtue of which the two sentences correspond to reality, if they do correspond . . . It follows that there are not two relations, *R* and its converse, involved in the state of affairs, but only one . . . [S]peaking ontologically, there is no such thing as a relation and its converse. There is simply the one relation holding between *a* and *b*, the particular *a* playing one role in the relational situation and *b* another' (Armstrong 1978b, 42, 94). Unfortunately Armstrong does not go on to explain what this difference of role might be. Fine's argument against converse relations is also structurally similar to Ramsey's famous argument against complex properties (Ramsey 1925, 14). See MacBride 2005b, 88–90 and 'Russell on Relations' (forthcoming) for further discussion.

- (1) Suppose there is a completion  $c$  of non-symmetric  $R$ .
- (2) By Identity,  $c$  is also a completion of the converse  $R^*$  of  $R$ .
- (3) By Uniqueness,  $R = R^*$ .
- (4) By the Standard View,  $R \neq R^*$ .

Since we cannot simultaneously adhere to our intuitions about completions and the standard view of non-symmetric relations, something has to give. Either we continue to adhere to the standard view of relations and give up *Identity* and/or *Uniqueness*. Or, alternatively, we hold onto *Identity* and *Uniqueness* and jettison the standard view of non-symmetric relations.

According to Fine, it is the second horn of this dilemma that we must embrace. But because this involves giving up the standard view, this manoeuvre requires the development of an alternative account of non-symmetric relations. We can already see what shape this account must take, if it is to avoid another head on collision with our metaphysical intuitions about completions. This non-standard account must (a) allow for the fact that non-symmetrical relations differentially apply, but (b) avoid the inclusion of converse relations in our ontology, thereby obviating the population problems that result from their admission.

### 3. A strategic overview

How can such a non-standard account of non-symmetric relations as Fine proposes be at all tenable? For surely such an account is under an impossible combination of demands. After all, it is non-symmetric relations that are responsible for order obtaining in the world. So if we are to avoid the inclusion of converse relations in our ontology – relations whose *raison d'être* is to apply to their terms in an order – it must be denied that non-symmetric relations apply to their terms in an order. This can only mean that non-symmetric relations are reducible to relations that do not apply to the objects they relate in an order. But relations that do not apply to the objects they relate in an order are symmetric, and we know that non-symmetric relations cannot be reduced to symmetric ones. A world that exhibits only symmetric relations is a world without order.<sup>4</sup> Hence, this objection concludes, there cannot be a tenable non-standard account that admits there are non-symmetric relations but denies the existence of converse relations.

There is no coming to an appreciation of what *NR* is about in the absence of an appreciation of what is flawed about this objection. In effect, the objection presents us with a dilemma. Either we must accept that relations apply to their relata in an order, in which case we must accept the existence of converse relations. Or we must deny that order obtains in the world, in which case we must

<sup>4</sup> For essentially the reasons that Russell put forward in his 1903, §§212–6.

deny the existence of non-symmetric relations. The objection has persuasive force because, blinkered by the employment of an undifferentiated notion of order, it appears that there is no logical space for Fine to pass between the horns of this dilemma – to affirm, as a non-standard account requires, the existence of non-symmetric relations whilst denying the existence of converse relations. But what *NR* attempts to establish is that there is no such undifferentiated notion of order and that once the different conceptual strands in our thinking about order are disentangled it is apparent that there is logical space aplenty in which to navigate between the horns of the dilemma proposed.

What are these different strands? They already lie in view. On the one hand, there is the notion of differential application – the capacity for which distinguishes non-symmetric from symmetric relations. On the other hand, there is the notion of direction (or sense) – that serves to distinguish a non-symmetric relation from its converse. By employing the former notion, whilst jettisoning the latter, Fine endeavours to account for the genesis of order in the world without being obliged thereby to reduce, *per impossible*, non-symmetric to symmetric relations. Of course it remains to be established that differential application can be understood, as Fine maintains, in the absence of an appeal to the concept of direction. If this cannot be done then indeed the claim that non-symmetric relations lack direction will be self-defeating – in effect tantamount to the claim that non-symmetric relations are reducible to symmetric ones. But if this is so, then argument is required to establish that the different conceptual strands in the notion of order are inseparable, and this cannot be assumed at the outset.

How then does Fine propose to make sense of the concept of differential application in the absence of the concept of direction? According to the standard account, each non-symmetric relation carries its own direction with it. Because it is inherently directional, a (e.g.) binary non-symmetric  $R$  is able to impose order directly upon the objects  $a$  and  $b$  that comprise a given completion. What this means is that whether  $aRb$  or  $bRa$  depends solely upon whether  $R$  runs from  $a$  to  $b$ , or, from  $b$  to  $a$ ; nothing else but  $R$ ,  $a$  and  $b$  are complicit in the mechanism that brings about the differential application of  $R$  to  $a$  and  $b$ . However, since Fine denies that non-symmetric relations carry their own inherent directions, something else must be involved in the mechanism that brings about  $R$ 's differential application.

In fact Fine examines two non-standard accounts of what this something else might be. These accounts will be developed in greater detail shortly; but, for the present purpose of gaining a strategic overview, thumbnail sketches will suffice. The first account proposes that the differential application of  $R$  is mediated via the assignment of  $a$  and  $b$  to the argument positions  $\alpha$  and  $\beta$  of  $R$ . Whether  $aRb$  or  $bRa$  depends upon whether it is  $a$  that fills the  $\alpha$  slot and  $b$  the  $\beta$  slot, or,  $a$  that fills the  $\beta$  slot and  $b$  the  $\alpha$  slot. So here the something else complicit in the

mechanism of differential application turns out to be the argument positions  $\alpha$  and  $\beta$ . Since it is committed to the existence of argument positions, Fine dubs this account of differential application ‘positionalist’.

However, because Fine finds positionalism wanting in certain critical respects, he is led to develop a more radical view. Because this second account of differential application eschews appeal to argument positions Fine dubs it ‘anti-positionalist’. According to anti-positionalism, the something else complicit in the mechanism of the differential application of  $R$  to  $a$  and  $b$  turns out to be other completions to which  $R$  gives rise (for example,  $cRd$ ). Whether  $aRb$  or  $bRa$  depends upon what interconnections obtain between the completions that result from the saturation of a non-symmetric relation. Embracing anti-positionalism, Fine arrives at the conclusion that order (in the sense of differential application) is not an isolable feature of a given completion but only emerges over a totality of completions to which a non-symmetric relation gives rise.

If Fine is right to draw this conclusion then it is (at least in significant part) the implicit assumption that the obtaining of order is an isolable phenomenon – local to a given completion – that has resulted in the entangling of the concepts of differential application and direction in our thought, and preventing our seeing that the former can be understood in the absence of the latter. For, once this assumption is discarded, the possibility of accounting for differential application without appealing to the concept of direction opens up before us. To assess whether such an account of differential application is indeed possible, a more detailed examination is required of the arguments for anti-positionalism and against positionalism.

#### 4. *No easy way out*

But is there really any need to examine arguments for and against such abstruse views as these? A disinterested observer is likely to respond to what we have heard so far in the following fashion. What motivates Fine to develop non-standard accounts of differential application is a basic puzzle that besets the standard view of order. The puzzle is framed relative to a background of realism about completions and relations. So, *prima facie*, if realism is rejected in favour of (a) nominalism about completions, or (b) nominalism about relations, the puzzle will just evaporate. If there are no completions then there can hardly be too many of them (failures of *Identity*); nor an issue about how a single completion can arise from more than one relation (failures of *Uniqueness*). More radically, if there simply *are* no relations, there cannot be an overabundance of converse relations (*after* in addition to *before*, *greater* as well as *less*, and so on). This suggests that the best way to extricate ourselves from the basic puzzle that Fine articulates is to adopt one or other of these types of nominalism – for example, the Ramsey-inspired



view that whilst there are objects, properties and relations arranged thus-and-so in the world, there are no such entities as *arrangements* (completions) constituted out of objects, properties and relations.<sup>5</sup> Indeed the very abstruseness of the non-standard accounts (positionalism and anti-positionalism) that Fine develops to otherwise avoid the puzzle identified, appears to constitute grounds for rejecting realism in favour of nominalism.

Although perfectly intelligible, this reaction is still an overreaction. What it leaves out of consideration is the strength of the following intuition. When we report that the cat is on top of the mat, and that the mat is underneath the cat, we are not just reporting upon one thing and then another; what we say first is not independent of what we say second. There appears rather to be a highly intimate connection, or unity, of underlying subject matter that receives expression, albeit in different forms, in both reports. Speaking intuitively, there is a way in which the cat stands to the mat when the cat is on top of the mat, and the way in which the cat stands to the mat is the very same when the mat is underneath the cat. And this holds necessarily, or so it seems, even if we refuse to reify 'ways' and conceive of 'way' talk as non-committing.<sup>6</sup>

A nominalist about completions or relations cannot accommodate this intuition by uncovering a shared ontological commitment to a common subject matter. For such a nominalist denies the existence of the kinds of entity – completions and relations – that alone appear capable of serving as an underlying subject matter for such intimately connected reports as 'the cat is on top of the mat' and 'the mat is under the cat'. Of course, this does not show that a nominalist cannot, by some other means, accommodate the intuition that there is an important connection to be made out between these reports. But, by contrast, the non-standard accounts of differential application that Fine develops seek to accommodate this intuition in the most natural conceivable manner. They posit a single underlying completion, resulting from the saturation of a unique relation; a completion depicted by the different reports made, from, so to speak, different points of view. It is because positionalism and anti-positionalism endorse such a natural conception of things that they demand examination.

<sup>5</sup> See Ramsey 1927, 39. Consider also the Frege inspired view that there are no completions at the level of reference, but only objects that are the arguments of functions that deliver the True or the False as values (see his 1891). Again, this view avoids the puzzle Fine articulates, but it is thereby prevented from uncovering a unitary subject matter underpinning the application of predicates ('is on top of', 'is underneath') that, by Fregean lights, denote different functions. This problem may be sidestepped by adopting nominalism about relations and denying that predicates are denoting expressions. But still the question remains: what binds together the application of these predicates so closely (closer even than necessary equivalents)?

<sup>6</sup> As Geach expresses the point, 'a relation neither exists nor can be observed apart from its converse relation; what is more, the concept of a relation and its converse is one the same indivisible mental capacity. And we cannot exercise this capacity without actually thinking of both relations together; *relativa sunt simul natura et intellectu*' (Geach 1957, 33).

### 5. Positionalism

According to positionalism, an  $n$ -ary non-symmetric relation  $R$  comes equipped with  $n$  argument positions. A completion results when, figuratively speaking, each of  $R$ 's positions is filled with an object;  $R$  thus holds of the objects it relates only relative to their assignment to (filling of) argument positions (NR, 13). For example, *loves* is a binary relation that comes equipped with two argument positions – call them lover and beloved. The completion *Antony's loving Cleopatra* obtains just in case Antony is assigned to the lover position whilst Cleopatra is assigned to the beloved position; whereas *Cleopatra's loving Antony* obtains just in case Antony and Cleopatra swap argument positions.

Positionalism is conceived as an alternative to the standard account of non-symmetric relations according to which relations apply to their relata *in an order*. But what has been said so far fails to distinguish between these views. For nothing has been said to rule out a deflationary reading of argument position talk. According to such a reading, talk of (e.g.) Antony occupying the lover position whilst Cleopatra occupies the beloved position, is just a fancy way of saying that *loves* holds of Antony and Cleopatra (in that order). But if appeal to argument positions (lover, beloved) is really shorthand for an appeal to an inherently directional relation (*loves*), positionalism really is no more than a long-winded version of the standard view. It is consequently beset by the same basic puzzle that results from maintaining that relations apply to their relata in an order.

To prevent positionalism collapsing into the standard view, Fine takes three steps. First, he reckons it an existential commitment of positionalism that argument positions are 'specific entities' (NR, 10), discourse about which cannot be parlayed away in deflationary fashion. Second, he makes it an essential feature of the positionalist view, that it renounces the ideology of order; so there can be 'no intrinsic order to the argument places' of a relation (NR, 11).

Whilst positionalism is thereby distinguished from the standard account, it does not follow that the former is free of the problems that bedevil the latter. These problems arise from the fact that, according to the standard account, non-symmetric relations apply to their relata in an order, and this makes it difficult (we have seen) to resist the inclusion of converse relations in our ontology, relations that threaten to overpopulate reality. Of course, the positionalist cannot be committed to converse relations via an ideology of order that she renounces. But if two non-symmetric relations are capable of sharing their argument positions then it becomes no less difficult, in the context of the positionalist account, to resist the inclusion of converse relations. For suppose that a non-symmetric relation  $R$  has two argument positions  $\alpha$  and  $\beta$ . Then its converse may be defined as the relation  $R^*$  that shares the very same positions  $\alpha$  and  $\beta$ , but which swaps around whatever objects fill these positions in  $R$ . Hence, whenever  $R$  holds of

some objects  $a$  and  $b$  relative to the assignment of  $a$  to  $\alpha$  and  $b$  to  $\beta$ ,  $R^*$  holds of the same objects relative to the assignment of  $b$  to  $\alpha$  and  $a$  to  $\beta$ . Once again, however, it would appear arbitrary to admit the existence of  $R$  but not  $R^*$ . For what grounds could there possibly be for affirming that it is really the former, rather than latter, that genuinely exists (or *visa versa*)? So, if non-symmetric relations can share their argument positions, it appears that we cannot avoid commitment to both  $R$  and  $R^*$ , and to the population problems that result from their admission. To prevent a commitment to converse relations, Fine therefore takes the third step of denying that non-symmetric relations are capable of sharing positions (*NR*, 12).

From the point of view of positionalism so-developed, non-symmetric relations are then neutral; they are without direction in the sense that the notion of converse cannot meaningfully be defined for them. But even though lacking direction in this sense, these relations still admit of differential application. Whether they apply one way, rather than another, depends upon whether they hold relative to one, rather than another, assignment of objects to argument positions. Thus what distinguishes (e.g.) the state of *Antony's loving Cleopatra* from the state of *Cleopatra's loving Antony* is the relative assignment of Antony and Cleopatra to the lover and beloved positions of the non-symmetric relation *loves*. In this way the diversity of the resulting completions is seen to arise from a difference in their relative assignments of objects to the argument positions of a non-symmetric relation.

The appearance remains, however, that inherently directional relations are a commitment of our ordinary ways of speaking. Let us return our attention to the cat sitting on top of the mat. This situation may be effectively characterised in two different ways, by saying (i) that the cat is on top of the mat, or (ii) that the mat is underneath the cat. Prima facie, different relations (*being on top of*, *being underneath*) semantically underpin these different but nevertheless accurate characterisations. But, according to positionalism, there is only a single completion here; one that results from the cat and the mat filling the positions respectively, call them above and below, of a single neutral relation. Call it *vertical placement* to avoid the impression, as the use of 'is on top of' or 'is underneath' might suggest, that the underlying relation has any inherent direction of its own. Whilst *Identity* and *Uniqueness* are thereby respected, an explanation is evidently owed of how 'is on top of' and 'is underneath' can both correspond to *vertical placement*. More generally, an account is owed of how the members of a relevant pair of such relational expressions ('is before'/'is after', 'is greater than'/'is less than' *etc.*) are capable of corresponding to a single neutral relation.

In fact, positionalism is well placed to provide a satisfying account of this correspondence by associating converse rules for (typically in English) interpret-

ing the signs that left and right-flank token occurrences of these relational expressions.<sup>7</sup> Thus, for example, ‘is on top of’ is associated with the rule that (a) a sign left-flanking one of its occurrences be assigned to the above position of *vertical placement*, whereas (b) a right-flanking sign of the same occurrence be assigned to the below position. By contrast, ‘is underneath’ is associated with the converse rule that (a\*) a sign left-flanking one of its occurrences be assigned to the below position of *vertical placement*, whereas (b\*) a right-flanking sign of the same occurrence be assigned to the above position. So whilst tokens of ‘the cat’ and ‘the mat’ occur in a different order in (i) ‘the cat is on top of the mat’ and (ii) ‘the mat is underneath the cat’, the converse rules associated with ‘is on top of’ and ‘is underneath’ for interpreting left- and right-flanking signs dictate that both sentences nevertheless say the same thing about the same relation, *viz.* that the cat occupies the above slot, whereas the mat occupies the below slot in the neutral relation *vertical placement*.

#### 6. Positionalism assessed

Despite the inherent plausibility of this account Fine rejects positionalism. He raises two primary objections to the view. (1) Fine begins by pointing out that positionalism includes argument positions ‘among the fundamental furniture of the universe’. But, Fine continues, ‘we are strongly inclined to think that there should be an account of the identity of argument places in other terms and that there should be an account of the relational facts . . . in which all reference to argument-places is eschewed’ (*NR*, 16). Therefore Fine recommends an alternative account of differential application that avoids the ontological excesses of argument positions.

In the current context this objection cannot be made to carry much weight. On the one hand, the positionalist may share the conviction that argument positions cannot belong to the fundamental furniture of the universe. But instead of giving up positionalism, he or she may eschew an ontology of argument positions in favour of an enriched ideology that captures the notion of argument position in a quite different fashion. Rather than conceiving of the expressions ‘ $\alpha$ ’ and ‘ $\beta$ ’ as singular terms denoting objects in a domain of quantification, the positionalist may treat ‘ $\alpha$ ’ and ‘ $\beta$ ’ as adverbs expressing modes of saturation, where care is taken not to construe talk of ‘modes’ as entity invoking. Take the claim that whereas, relative to a given completion, *a* fills the  $\alpha$  position of *R*, *b* fills its  $\beta$  position. Under the proposed treatment, this receives the canonical formulation: whereas, relative to a given completion, *R* is  $\alpha$ -ly saturated by *a*, *R*

<sup>7</sup> See Williamson 1985, 257–8.

is  $\beta$ -ly saturated by  $b$ . Whether  $aRb$  or  $bRa$  will thus depend upon *how*  $a$  and  $b$  saturate  $R$ .<sup>8</sup>

On the other hand, wary of enriching our ideology with adverbs of saturation, but still unmoved by Fine's testimony about 'what we are strongly inclined to think', the positionalist may persist in positing a domain of argument positions. After all, he or she may reflect, argument positions appear to be relatively innocuous items. They are abstract and don't take up space. An ontological commitment to them does not conflict *per se* with other theoretical undertakings we wish to make. It's just that we don't expect to have to believe in them. Suppose that what was, in all other respects, our best theory of differential application turned out to be committed to argument positions. Then our prior expectation that positions are not included 'among the fundamental furniture of the universe' would not provide a reason for rejecting this theory. Rather, we would be presented with the welcome result that, sometimes, philosophical investigation leads to a genuine discovery being made. So whether the positionalist includes argument positions amongst the fundamental furniture of the universe or not, it remains to be established that his, or her, account is untenable.

(2) Fine's next objection is not only independent of the first but succeeds in exposing a key weakness in the positionalist account. Recall the technique that Fine employed to undermine the standard account of differential application: (i) elicit your reader's intuitions about the identity of particular completions involving non-symmetric relations and their converses (*A's preceding B = B's succeeding A etc.*); (ii) garner these intuitions together to arrive at a general principle governing completions (*Identity*); (iii) show that this principle is incompatible with an otherwise attractive account of differential application (the standard view). Fine re-applies this technique to undermine positionalism, except this time he builds his case by eliciting from his reader intuitions about completions involving symmetric relations (*NR*, 17).

Suppose that Abramovich is just as wealthy as Khodorkovsky. Because the relation *being just as wealthy as* is symmetric it follows that Khodorkovsky is just as wealthy as Abramovich. But we do not suppose ourselves to describe thereby a necessary connexion between two distinct completions. Why? Because it is natural to think that *Abramovich's being just as wealthy as Khodorkovsky* is the very same state as *Khodorkovsky's being just as wealthy as Abramovich*. Similarly, it is natural to think that *Putin's being the same height*

<sup>8</sup> Of course there will be *some* modes of saturation for which adverbs are lacking in our language. So the positionalist who conceives of argument positions in this adverbial way will also be obliged to deny that the quantificational idiom ('some modes') employed to express such truths presupposes a domain of modes (i.e. positions). See Prior (1971, 31–7) for defence of the view that, *contra* Quine, quantificational forms of expression are not invariably committing. I discuss Prior's view at greater length in MacBride 2006, 442–7.

as *Yushchenko* is the same state as *Yushchenko's being the same height as Putin*, and that *Vladivostok's being distant from Moscow* is the same state as *Moscow's being distant from Vladivostok*, and so on. Garnering these intuitions together we arrive at a principle that plausibly governs a significant range of binary symmetric relations: for any such relation, there is only one completion that arises from its saturation by two objects  $a$  and  $b$  ( $aRb = bRa$ ). Call this principle, *Identity<sup>sym</sup>*.<sup>9</sup>

We have seen that the positionalist make two key assumptions about non-symmetric relations in order to account for their differential application: (a) that  $n$ -ary non-symmetric relations are bestowed with  $n$  argument positions; (b) that a difference in the relative assignment of objects to the argument positions of a non-symmetric relation suffices for the diversity of the resulting completions. If these assumptions are to carry conviction then they should not be *ad hoc* but integral features of a uniform account of relations. Prima facie therefore (a) and (b) should also apply to symmetric relations and their completions. However, Fine demonstrates that *Identity<sup>sym</sup>* is incompatible with positionalism when (a) and (b) are generalised in this way.

Take the binary relation of *being next to*. By (a), *being next to* has two argument positions. Call them next and nixt. There are two ways of assigning (e.g.) the cat and the mouse to these argument positions. Either the cat is assigned to next and the mouse to nixt, or the mouse is assigned to next and the cat to nixt. By (b), the completion that results when *being next to* holds relative to the former assignment is distinct from the completion that results when *being next to* holds relative to the latter assignment. But, by *Identity<sup>sym</sup>*, these completions are the same; there are not two states, the cat's being next to the mouse, and the mouse' being next to the cat, but only one.

In the main body of *NR* Fine draws the conclusion that because (a), (b) and *Identity<sup>sym</sup>* are incompatible, positionalism should be rejected (*NR*, 17). But this assumes that the positionalist cannot modify his or her account so as to avoid a commitment to one or other member of this inconsistent triad. One way for the

<sup>9</sup> In fact, Fine achieves greater generality by introducing the notion of 'strict symmetry' (*NR*, 17). An  $n$ -ary relation is 'strictly symmetric' with respect to distinct argument positions  $\alpha_1$  and  $\alpha_2$  if the completion that results from the assignment of  $a_1, a_2 \dots, a_n$  to  $\alpha_1, \alpha_2 \dots, \alpha_n$  is identical to the completion that results from the alternative assignment of  $a_2, a_1 \dots, a_n$  to  $\alpha_1, \alpha_2 \dots, \alpha_n$ . Thus, for example, the symmetric relation *x is between y and z* is strictly symmetric with respect to its last two positions: the state of *b's being between a and c* is identical to the state of *b's being between c and a*. Fine thus arrives at the principle that a range of symmetric relations are strictly symmetric. This principle is more general than *Identity<sup>sym</sup>*. However, the loss of generality is not significant for the purposes of clarifying and evaluating Fine's case against positionalism.

positionalist to do so is simply to give up *Identity<sup>sym</sup>*.<sup>10</sup> This principle restricts the number of completions that can arise from the saturation of a symmetric relation. Consequently, to give up *Identity<sup>sym</sup>* is to embrace a more abundant conception of completions. Certainly there is a version of the standard account of differential application that would counsel the wisdom of such a move. According to this view, it is not only non-symmetric relations that have directions; symmetric relations have directions too. What is distinctive about symmetric relations, and distinguishes them from non-symmetric relations, is that they invariably apply to their relata in more than one direction.<sup>11</sup> For example, *being next to* applies to the cat and the mouse in that order, and it also applies to the mouse and the cat in that order. So not only is there the completion that consists in *being next to* applying to the objects it relates in the former way, there is also a distinct completion that consists in *being next to* applying to them in the latter way. From this point of view, *Identity<sup>sym</sup>* only appears a plausible principle because we are liable to over interpret our intuitions about completions involving symmetric relations. Intuition certainly tells us that *the cat's being next to the mouse* and *the mouse's being next to the cat* are mutually entailing completions; 'certainly' because that is what, from this point of view, makes relations count as symmetric. But it requires the intervention of more theory to arrive at the conclusion that there is only one completion involved.

However, the positionalist is not at liberty to give up *Identity<sup>sym</sup>*. Positionalism was originally motivated by the concern to avoid an over-abundance of completions that conflicted with an intuitively grounded principle governing non-symmetric relations and their converses, *Identity*. It would be deeply incongruous for the positionalist to endorse *Identity* but to reject *Identity<sup>sym</sup>*; to maintain, in other words, a sparse theory of completions involving non-symmetric relations but an abundant theory of completions involving symmetric relations. How could one sensibly maintain the perplexing view that whilst *the cat's being on the mat* is the same state as *the mat's being under the cat*, *the cat's being next to the mouse* is a distinct state from *the mouse's being next to the cat*? (Of course, no such incongruity besets the version of the standard view that rejects both *Identity* and *Identity<sup>sym</sup>*.)

Another possible move here is for the positionalist to restrict (a), so that *n*-ary symmetric relations are not bestowed with *n* argument positions after all. This

<sup>10</sup> This is, in effect, Grossman's response, who, anticipating Fine's argument against the positionalist, performs a *modus ponens* where Fine takes a *modus tollens*: 'Consider the relation of being a spouse of someone. The relation is symmetric: if *a* is the spouse of *b*, then *b* is the spouse of *a*, and conversely. But even though the relation is symmetric, the fact that Tom is the spouse of Jane is not the *same* fact as that Jane is the spouse of Tom. These are two different facts because in the first fact, Tom occupies the '@-place', while in the second, Jane is in this slot' (Grossman 1992, 57).

<sup>11</sup> See, for example, Hochberg 1984, 199–200.

may sound an even more desperate manoeuvre than giving up *Identity<sup>sym</sup>*. For what could be more plausible than the claim that an  $n$ -ary relation relates  $n$  objects, and does so via the assignment of each of these  $n$  objects to one of its  $n$  argument positions? But this last claim rests upon the doctrine that there must be a 1-1 correspondence between the argument positions of a relation and the objects it relates, a doctrine that there are independent reasons to give up.

Consider, for example, the geometrical properties expressed by predicates like 'form a circle'. When  $a$ ,  $b$ ,  $c$  and  $d$  form a circle this is something they do collectively; taken in isolation from one another they are incapable of forming any shape whatsoever. So *form a circle* must apply to these several objects not severally but together. Nevertheless, *form a circle* does not apply to  $a$ ,  $b$ ,  $c$  and  $d$  in any significant order; there are no privileged or distinguished points when it comes to forming a circle. Metaphysically speaking, this suggests that *form a circle* should be conceived as a one-place property to be distinguished thereby from the many-placed relations that do differentially apply to the objects they relate. Nevertheless, to accommodate the fact that *form a circle* can only apply to several individuals at once, it must also be allowed that a completion that results from the saturation of this property requires the assignment of more than one object to its sole argument position.<sup>12</sup>

What giving up the doctrine that there is a 1-1 correspondence between argument positions and the objects reveals is that the notion of an  $n$ -ary relation is ambiguous. On the one hand, it may mean that the relation has  $n$  argument positions. On the other hand, it may mean that the relation relates  $n$  objects. Since the numbers of positions and objects related need not match, these two notions come apart. Reserving 'arity' to describe the number of argument positions possessed by a relation, we may state the view at which we have arrived: an  $n$ -ary relation need not relate  $n$  objects.

Now what made positionalism inconsistent with *Identity<sup>sym</sup>* was the assumption that symmetric relations like *being next to* are endowed with more than one argument position ( $a$ ). If they are endowed with more than one argument position then there is more than one way in which objects may be assigned to those positions. But since completions that obtain relative to different assignments of objects to argument positions are numerically different ( $b$ ), this gives rise to an embarrassing diversity of intuitively identical completions (*Identity<sup>sym</sup>*). However, admitting the possibility that more than one object may occupy the same argument position suggests a way for the positionalist to avoid this embarrassing diversity. He or she need merely deny that relations like *being next to* have more than one argument position. If there is no next and nixt but only one argument position, nuxt, then there is only one way in which objects can be assigned to positions

<sup>12</sup> See MacBride 2005a, 587–8.



relative to which *being next to* can be saturated by the cat and the mouse. Consequently the need for the positionalist to distinguish between *the cat's being next to the mouse* and *the mouse's being next to the cat* is removed.

Fine acknowledges the possibility of the positionalist taking this way out in a footnote, describing it as the proposal 'that the relata in a symmetric relation should be taken to occupy the same position'.<sup>13</sup> The rejoinder that Fine makes to this proposal is intriguing. In the next sentence he writes: 'But consider the relation  $R$  that holds when  $a, b, c, d$  are arranged in a circle (in that very order)'. The completion that consists of  $R$  holding of  $a, b, c, d$  in this way admits of four different representations: (i) ' $Rabcd$ ', (ii) ' $Rbcda$ ', (iii) ' $Rcdab$ ', (iv) ' $Rdabc$ '. Suppose that  $\alpha, \beta, \gamma$  and  $\delta$  are the argument positions of  $R$  that correspond to the first, second, third and fourth argument places of the predicate ' $R_{-1-2-3-4}$ '.<sup>14</sup> Fine now reasons,

Then by (i),  $a, b, c, d$  will occupy the respective positions  $\alpha, \beta, \gamma, \delta$ ; by (ii)  $b, c, d, a$  will occupy the respective positions  $\alpha, \beta, \gamma, \delta$ ; and similarly for (iii) and (iv) (NR, 18 n.10).

It follows that each of the objects  $a, b, c, d$  will occupy each of the positions  $\alpha, \beta, \gamma, \delta$ . But this undermines the positionalist's account of the differential application. For  $R$  is a non-symmetric relation that is also capable (e.g.) of holding of  $a, c, b$  and  $d$  arranged in a circle (in that very order). By parity of reasoning, the resulting completion admits of four different representations, (v) ' $Racbd$ ', (vi) ' $Rcbda$ ', (vii) ' $Rbdac$ ', (viii) ' $Rdacb$ ', that ascribe each of  $a, c, b$  and  $d$  to each of the positions  $\alpha, \beta, \gamma, \delta$ . But this means that  $R$ 's holding of  $a, b, c, d$  (in that very order) involves the same assignment of objects to positions as  $a, c, b$  and  $d$  (in that very order). And so, Fine concludes, 'it will be impossible, on this view, to distinguish between the states represented by  $Rabcd$  and  $Racbd$ '.

It is important to appreciate that Fine's argument here is not directed primarily against the proposal that relata in a symmetric relation occupy the same relation. Indeed, he appears to grant the intelligibility of so-construing symmetric relations; and it is because of this, apparently, that Fine goes on to discuss a different kind

<sup>13</sup> See NR, 17 n. 10. Fine also considers another way out: 'to treat a symmetric relation as a property of pluralities'. Unfortunately, Fine does not elaborate upon why he distinguishes this way out from the proposal that the relata of a symmetric relation occupy the same position. Perhaps Fine conceives of the expression 'plurality' not merely as a grammatically singular way of talking about the many (in this case, relata) but as a device for singularly referring to a reified one that the many compose. Fine goes onto reject this way out for the reason that it 'is unable to deal with symmetric relations, such as *overlap*, that themselves hold between pluralities'. As we will become evident, a version of this complaint applies to the proposal that the relata of a symmetric relation occupy the same position.

<sup>14</sup> In fact Fine writes, 'Let  $\alpha, \beta, \gamma, \delta$  be positions corresponding to the first, second, third and fourth argument places of  $R$ '. I assume that Fine means the predicate ' $R$ ' rather than the relation underlying its application. His exact meaning is unclear; elsewhere he employs the locutions 'argument positions' and 'argument places' interchangeably (NR, 16).

of problem case for the positionalist involving a *non-symmetric* relation (the cyclical relation  $R$ ). So, despite occurring where it does, what we have here is an independent objection (3) to positionalism.

This third objection is not conclusive. On the one hand, the positionalist may grant that *if* a relation like  $R$  exists then  $R$  represents a counter-example to her view. But the positionalist may go on to deny such a relation exists. For by wedding positionalism with a sparse theory of relations, it may plausibly be maintained that whilst the predicate ' $R$ ' truly applies to  $a$ ,  $b$ ,  $c$  and  $d$  (in that very order), it is the dyadic relations that obtain between these objects that suffice to make ' $Rabcd$ ' true – the fact that, roughly,  $a$  is next to  $b$ ,  $b$  next to  $c$ ,  $c$  next to  $d$  and  $d$  next to  $a$ . Unfortunately, this counter is insufficiently systematic to really address the concern Fine has raised. Even if there happens to exist sufficient resources to explain the application of ' $R$ ' without positing a corresponding relation, it does not follow that sufficient resources will invariably exist to explain away other actual or possible occurrences of relations of the troublesome kind that  $R$  purports to be.

Alternatively, the positionalist may question whether  $R$ , even if it exists, constitutes any kind of counter-example. It is true that the state  $S$  that consists of  $R$  holding of  $a$ ,  $b$ ,  $c$ ,  $d$  (in that very order) admits of four different linear representations ((i)–(iv)). What each of these representations preserve is the relative order of ' $a$ ', ' $b$ ', ' $c$ ' and ' $d$ '. That is what enables them to represent the same state  $S$ . For the purposes of representing  $S$  the absolute order of the expressions ' $a$ ', ' $b$ ', ' $c$ ', ' $d$ ' as they are written down on the page bears no semantic significance; it does not matter which of these expressions occurs first in a representation of  $S$ . Consequently, there is no reason to suppose that because ' $a$ ' is listed first in (i) but fourth in (ii), that (i) represents  $a$  occupying one argument position whereas (ii) represents  $a$  occupying a different argument position. So the positionalist has no reason to grant, as Fine's third objection assumes, that the argument positions of  $R$  correspond in a linear way to the argument places of ' $R$ '. To suppose otherwise would be to impose a semantic significance upon the linear order of expressions used to represent  $S$  that the rules for projecting from an arrangement of expressions onto a circle of objects do not bestow. Since it has not been established that the positionalist is committed to supposing otherwise, this objection fails to strike home.

It is time to take stock. We have examined three of Fine's arguments against positionalism.

- (1) That argument positions do not belong to the fundamental furniture of the universe.
- (2) That the positionalist account of the differential application of non-symmetric relations conflicts with our intuitions about the identities of completions involving symmetric relations (*Identity<sup>sym</sup>*).

- (3) That the positionalist account cannot accommodate the differential application of non-symmetric relations that form closed series (the cyclical relation  $R$  above).<sup>15</sup>

The first and third of these objections have turned out to be inconclusive. So far, it also appears that the second objection can be avoided if the positionalist is willing to adopt the proposal that symmetric relations have only one argument position.<sup>16</sup> But really there is no way out here for the positionalist.

Adopting this proposal enables the positionalist to avoid distinguishing states that are intuitively identical. For if each symmetric relation has only one argument position then no diversity of completions results from the assignment of different objects to different argument places. This proposal appears plausible if we restrict our attention to symmetric relations, like *being next to*, *being parallel* or *being similar*. This is because the interchange of constituents of completions that arise from the saturation of such relations does *not* generate a diversity of completions ( $l_1$  *being parallel to*  $l_2 = l_2$  *being parallel to*  $l_1$  etc.). There appears then no necessity to conceive of (e.g.) *being parallel* as imposing more structure upon the objects it relates than is already captured by placing them in the *same* argument position. However there are other symmetric relations that give rise to states the interchange of whose constituents *do* generate a diversity of completions. It is highly implausible that these relations are one place.

Suppose that Jack and Jill are playing tug-of-war with Tom and Jerry. The relation *playing tug-of-war* is evidently symmetric. More strongly, the state ( $S_1$ ) of *Jack and Jill's playing tug-of-war with Tom and Jerry* is evidently the same state as ( $S_2$ ) *Tom and Jerry's playing tug-of-war with Jack and Jill*. Nevertheless, if Jack and Tom are interchanged then a different completion results: ( $S_3$ ) *Tom and Jill's playing tug-of-war with Jack and Jerry*. This shows that the relation that gives rise to these completions cannot have only one argument position. Let  $T$  be the relation *playing tug-of-war with*. If  $T$  has only one argument position  $\alpha_1$ , then there is only one way of assigning Jack, Jill, Tom and Jerry to this position. But this means that  $S_1$  cannot be distinguished from  $S_3$ ; there cannot be a difference in the way that they assign objects to argument positions that tells them apart. In order to avoid the embarrassment of identifying these states, the positionalist must therefore recognise that  $T$  has another argument position  $\alpha_2$ . Then  $S_1$  is distin-

<sup>15</sup> Fine raises an additional fourth objection to positionalism, *viz.* that it cannot accommodate the possibility of variably polyadic (or multigrade) relations: 'Under the positionalist view, it is hard to see how any relation could be variably polyadic; for the number of argument places belonging to a relation will fix the number of relata that may occupy them' (*NR*, 22). This objection is discussed further below.

<sup>16</sup> Armstrong at least comes close to endorsing this proposal in his 1997, 90–1. He writes, 'David Lewis has suggested to me that an appropriate symbolism for a necessarily symmetrical relation is a predicate with a plural subject: *they* ( $a$  and  $b$ ) are a mile apart.'

guished from  $S_3$  by the fact that the former completion obtains relative to the assignment of Jack and Jill to  $\alpha_1$  and Tom and Jerry to  $\alpha_2$ , whereas the latter completion obtains relative to the assignment of Tom and Jill to  $\alpha_1$  and Jack and Jerry to  $\alpha_2$ .

The proposal that symmetric relations in general are one-place cannot therefore be sustained. If, however, the positionalist admits that some symmetric relations have more than one argument position, his account is subject to a version of Fine's original objection ((2) above). For example, if  $T$  has both the argument positions  $\alpha_1$  and  $\alpha_2$  then there are two different ways in which Jack and Jill, on the one hand, and Tom and Jerry, on the other, may be assigned to these positions. According to the first assignment, Jack and Jill fill the  $\alpha_1$ , whereas Tom and Jerry fill the  $\alpha_2$ . According to the second assignment, Tom and Jerry fill the  $\alpha_1$ , whereas Jack and Jill fill the  $\alpha_2$ . Because these assignments are different, the completions that obtain relative to these assignments must be different too. But, intuitively, there are not two completions capable of obtaining relative to these assignments. Just try to say what these different completions might be; the statements that may be most plausibly said to stand for these purported states, 'Jack and Jill's playing tug-of-war with Tom and Jerry' and 'Tom and Jerry's playing tug-of-war with Jack and Jill', evidently do not stand for different completions, but only one ( $S_1 = S_2$ ).<sup>17</sup>

Positionalism thus encounters a dilemma. Either it accommodates our intuitions about the identity of completions involving some symmetric relations (*the cat's being next to the mouse = the mouse's being next to the cat*) but at the expense of flouting our intuitions about the diversity of completions involving other symmetric relations (*Jack and Jill's playing tug-of-war with Tom and Jerry  $\neq$  Tom and Jill's playing tug-of-war with Jack and Jerry*). Or it accommodates the diversity of these completions but at the expense of other intuitions about their identities (*Jack and Jill's playing tug-of-war with Tom and Jerry = Tom and Jerry's playing tug-of-war with Jack and Jill*). Either way positionalism turns out to be unsatisfactory.

Perhaps this should have been obvious all along. Positionalism was originally developed as an alternative to the standard account of differential application, an alternative that denied the inherent directionality of relations and admitted only neutral relations. Fine described positionalism as 'the most natural and straightforward view of this kind'. He also declared that it 'solves the problems', *i.e.*

<sup>17</sup> One might attempt to avoid this problem by treating many-place symmetric relations as one-place collective properties, whose sole argument positions are assigned, in the case in hand, teams (*Tom-&Jerry*, *Jack-&Jill*), rather than team members (Tom, Jerry, Jack, Jill). However, admitting these 'unities' (teams) as self-standing objects significantly drives up the ontological and ideological costs of adopting positionalism. Unfortunately, for reasons of space, I cannot develop this theme here. See MacBride 2005a, 580–4 for further relevant discussion.

succeeds in accounting for the differential application of non-symmetric relations (NR, 10). The real problem with positionalism, so far as Fine is concerned, is that it leads to ‘an erroneous account of symmetric relations’ (NR, 16). But there is a deeper problem still. Many-place symmetric relations deserve their place alongside many-place non-symmetric relations. According to positionalism, these relations consist alike of unordered positions; from the positionalist point of view there is really no metaphysical difference to be made out between these symmetric and non-symmetric relations. But if positionalism leaves us unable to discern the difference between these relations it can hardly be said to succeed in accounting for what is distinctive about non-symmetric relations, their unique capacity to admit of differential application.

### 7. *Anti-positionalism*

The standard view is confounded by its commitment to a primitive notion of order. Positionalism is undone because it presupposes argument positions. To avoid the difficulties associated with these views, Fine develops a third theory that is intended to presuppose neither order nor positions, namely anti-positionalism. That there is even logical space for an account of differential application that presupposes neither of these notions appears incredible. Developing an analogy with a structurally similar theory in a more familiar field of enquiry (‘the problem of universals’) will help show what is credible about the account Fine proposes.

How are we to account for the fact that things in the world exhibit recurrent characteristics? What makes things (e.g.) coloured or shaped? According to the Aristotelian doctrine of *universalia in rebus*, a thing is (e.g.) red because the universal redness is *in* it. The fact that this thing is red is thus constituted independently of facts about what other things are like, independently of whether redness is in them. By contrast, according to resemblance nominalism, a thing is red *because* it resembles exemplars of red things. So far from being independently constituted, the fact that this, or any other thing, is red ultimately depends upon its being *like* these other things. Whereas the Aristotelian holds that the resemblance of things is derivative, flowing from the presence of shared universals, the resemblance nominalist, maintains that resemblance (or likeness) is primitive and not derivative.<sup>18</sup>

Positionalism and the standard view are analogous to the doctrine of *universalia in rebus* in the following respect. Positionalism and the standard view ground the differential application of a relation  $R$  to  $a$  and  $b$  in the internal configuration of the completion that results from the saturation of  $R$  by  $a$  and  $b$ . That is, either

<sup>18</sup> See H. H. Price’s classic statement of this view in his *Thinking and Experience* (1953), chapter 1.

in the assignment of  $a$  and  $b$  to the argument positions of  $R$  relative to which the completion obtains; or in the order that  $a$  and  $b$  saturate  $R$  to give rise to this completion. The fact that  $R$  applies to  $a$  and  $b$  in a certain way is thus constituted *in rebus*, independently of facts about other completions that result from its saturation.

By contrast, anti-positionalism is analogous to resemblance nominalism in the following respect. Anti-positionalism grounds the differential application of  $R$  to  $a$  and  $b$  in the fact that the completion that results from the saturation of  $R$  by  $a$  and  $b$  is *like* other completions that result from the saturation of  $R$ . What makes it the case that  $R$  applies to  $a$  and  $b$  one way, rather than another, is the fact that the completion that actually arises from the saturation of  $R$  by  $a$  and  $b$ ,  $aRb$ , is *like* another exemplar completion,  $cRd$ , that also arises from saturation of  $R$ . Anti-positionalism thereby seeks to ground the differential application of a non-symmetric relation in the 'external' connections that obtain between completions. This is what makes it credible that anti-positionalism is able to account for differential application without presupposing positions or order, i.e. without appealing to the 'internal' construction of a completion.

Anti-positionalism presupposes that we have some antecedent grasp of what it means for completions to be 'alike' in a sense that guarantees that their constituent objects are related in the same way. To help us grasp what this means, the anti-positionalist appeals to the idea of *co-mannered completion*. Take the state  $s_0$  *Antony's loving Cleopatra* and state  $t_0$  *Aberlard's loving Eloise*. The anti-positionalist invites us to agree that  $s_0$  is completed by Antony and Cleopatra in the same manner as the state  $t_0$  is completed by Abelard and Eloise. Evidently, if  $s_0$  is co-mannered completed with  $t_0$  the state  $s_1$  *Cleopatra's loving Antony* cannot be completed by Cleopatra and Antony in the same manner as  $t_0$  is completed by Abelard and Eloise. According to the anti-positionalist, the difference between  $s_0$  (*Antony's loving Cleopatra*) and  $s_1$  (*Cleopatra's loving Antony*) is thereby grounded in the fact that the former, but not the latter, state is co-mannered completed with  $t_0$  these states are distinguished 'not by how they derive from the given relations and its relata, but by how they are interconnected' (NR, 21). By employing the notion of *co-mannered completion* to distinguish between states, the anti-positionalist is enabled 'to distinguish between the different ways a relation can hold; for we may use a given state and its constituents as an exemplar of the manner in question'. What makes it the case that Antony loves Cleopatra, rather than that Cleopatra loves Antony, is the fact that there is an actual state (say  $s_0$ ) that is completed by Antony and Cleopatra in the same manner in which an exemplar state that results from the saturation of *loves* ( $t_0$ ) is completed by its relata (Abelard and Eloise).

This may not be immediately apparent to us. After all, we can perfectly well say that one person loves another even in circumstances when we have no other

couple in mind. But, according to the anti-positionalist, we are only able to do this because ordinary predicates, like 'loves', operate at a high level of abstraction. A class of co-mannered completed states that arise from the saturation of *loves* share a *manner* of completion. If, for example, *Abelard's loving Eloise* ( $t_0$ ) is one of these states, then the manner in question may be identified as the manner in which – call it 'L' –  $t_0$  is the completion of *loves* by Abelard and Eloise. In this way  $t_0$  is used to fix the meaning of 'L' just as the standard metre in Paris is used to fix the reference of 'metre' (NR, 23).<sup>19</sup> Once the meaning of 'L' has been fixed, it becomes possible to refer to L independently of the completions that share this manner. Ordinary predicates, like 'loves', incorporate implicit reference to manners, like *L*. When we say that Antony loves Cleopatra what we are really saying is that *loves* hold of them in the manner *L*. Because reference to L is concealed beneath its surface form, the sentence 'Antony loves Cleopatra' appears to make no allusion to other completions of *loves*. However, the predicate 'loves' does implicitly refer to *L*, and *L* is essentially a manner shared by completions ( $t_0$  etc.) that result from the saturation of *loves*. It may appear surprising that making sense of one person's loving another requires understanding that one state is completed in the same manner as another. But if this is how things appear to us, it is only because the surface forms of language mislead us.

Does deploying the notion of *co-mannered completion* to so articulate the anti-positionalist account enable us to understand the view? There is certainly some plausibility to the idea that resemblance is a primitive notion, and that consequently the resemblance nominalist is entitled to employ resemblance without further analysis in an account of recurrent characteristics. However, it is far less plausible to suppose that the *co-mannered completion* is primitive and beyond analysis. Indeed it appears that *Antony's loving Cleopatra* and *Abelard's loving Eloise* are only co-mannered completed *because* the former state involves *loves* applying to Antony and Cleopatra in the same order that *loves* applies to Abelard and Eloise; or, alternatively, *because* they involve the same relative assignment of Antony and Cleopatra, and Abelard and Eloise, to the respective argument positions lover and beloved. But if that is the case, then anti-positionalism is really no alternative to the standard account or positionalism.

In fact Fine shares the suspicion: 'I agree that *co-mannered completion* is not the sort of notion that should be taken as primitive' (NR, 25). However, he believes that there is way of defining *co-mannered completion* in terms of a more fundamental notion of substitution: 'to say that  $s$  is a completion of a relation  $R$  by  $a_1, a_2, \dots, a_m$ , in the same manner that  $t$  is a completion of  $R$  by  $b_1, b_2, \dots, b_m$  is simply to say that  $s$  is a completion of  $R$  by  $a_1, a_2, \dots, a_m$  that results from simultaneously

<sup>19</sup> Of course any other co-mannered completion of *loves* could have served just as well as  $t_0$  to fix the meaning of 'L'.

substituting  $a_1, a_2, \dots, a_m$  for  $b_1, b_2, \dots, b_m$  in  $t$  (and vice versa)' (NR, 25–6). By defining *co-mannered completion* in this way Fine hopes to avoid the distinctive commitments of alternative accounts of differential application. Unfortunately this definition does not appear to be adequate as it stands. This is because the simultaneous substitution of the objects  $a_1, a_2, \dots, a_m$  that comprise one state for the objects  $b_1, b_2, \dots, b_m$  will only give rise to a new state that is co-mannered completed if, intuitively speaking, each substituted object  $b_i$  occupies the same position in the new state as the old object  $a_i$  in the old state. But since the anti-positionalist renounces argument positions, it is difficult to see how he or she can even make sense of this constraint, never mind enforce it.

However, in a footnote, Fine makes a remark that suggests how this concern may be addressed. He writes, 'Under certain conditions, the simultaneous substitution of many objects may itself be defined in terms of the single substitution of one object, and so the relatively complex notion of substitution can be reduced to a much simpler notion' (NR, 26, n.15). Unfortunately Fine does not expand on this remark. But take the state  $v$  that results from the saturation of  $R$  by  $a_1, a_2, \dots, a_m$ . The single substitution of  $b_1$  for  $a_1$  in  $v$  gives rise to a new state  $v_{+1}$  that results from the saturation of  $R$  by  $b_1, a_2, \dots, a_m$ . Fine's idea appears to be (roughly) that because only  $a_1$  is substituted for, whilst the other constituents of  $v$  ( $a_2, a_3, \dots, a_m$ ) remain undisturbed in their relative positions, it is guaranteed that  $b_1$  occurs in the same position in  $v_{+1}$  as  $a_1$  in  $v$ . Successive single object substitutions gives rise to a succession of states  $v, v_{+1}, v_{+2}, \dots$  in which each  $b_i$  first acquires, and then preserves through the process of subsequent substitutions of other  $b$ s for  $a$ s, the relative position of  $a_i$  in  $v$ . Eventually, after  $m$  substitutions, this succession of states terminates in  $v_{+m}$  that results from the saturation of  $R$  by  $b_1, b_2, \dots, b_m$ , where  $b_1$  in  $v_{+m}$  occupies the same relative position as  $a_1$  in  $v$ , where  $b_2$  in  $v_{+m}$  occupies the same relative position as  $a_2$  in  $v$ , etc. Because  $v_{+m}$  lies at the terminus of a process of single object substitutions that begins with  $v$ , it is clear that  $v_{+m}$  is completed in the same manner as  $v$ . What Fine is proposing (roughly) is that *co-mannered completion* be defined as a relation that obtains between two states just in case they are connected in this way by a process of single object substitutions.

### 8. Anti-positionalism assessed

With the notion of co-mannered completion so understood, it is evident that anti-positionalism constitutes a radical departure from more familiar accounts of differential application. When thinking about relations we ordinarily operate with a number of default assumptions. To even take on board the theory Fine proposes requires us to modify several of our system settings and then reboot. But even though 'Neutral Relations' provides one of the most penetrating and provocative treatments of relations since Russell wrote upon the subject, anti-positionalism



does not constitute a significant advance upon more familiar accounts of differential application.

Consider once more anti-positionalism's intellectual cousin, resemblance nominalism. There are two classic objections to the view. The first, famously due to Russell, is that we cannot avoid universals by appealing to resemblances. According to resemblance nominalism, a thing is red if it has the right sort of resemblance to an exemplar red thing. But since there are many red things, this resemblance must itself hold between many pairs of red things; resemblance is a 'one-over-many'. This means that instead of avoiding universals, the resemblance nominalist presupposes at least one universal, *viz.* resemblance. It will be of no avail to insist that resemblance is not a one-over-many because there is a different resemblance for each pair of resembling things. For even different resemblances will need to resemble one another and so resemblance is revealed as a one-over-many once more. Russell concludes, 'The relation of resemblance, therefore must be a true universal. And having been forced to admit this universal, we find that it is no longer worthwhile to invent difficult and unpalatable theories to avoid the admission of such universals'.<sup>20</sup>

According to the second objection, resemblance nominalism cannot accommodate the possible non-existence of exemplar objects. If an object's being (e.g.) square is constituted by its relations to other square things, then it cannot be square if other square things do not exist. But it is possible for there to be only one square object in the world and for no other exemplars of square to exist. What makes a square thing square cannot therefore be constituted by its resemblance to other square things.<sup>21</sup> It will hardly help to say that a square object existentially isolated from other square things is shaped the way it is because if only other square things had existed it would have resembled them. This implausibly grounds what is actually the case in terms of what is possibly so, and requires the resemblance nominalist to enrich the ideology and ontology of their theory in order to make sense of these counterfactual comparisons. Just as Russell remarked, it does not seem worthwhile to develop such a difficult and unpalatable theory simply to avoid the admission of universals.

Anti-positionalism is open to two analogous objections. First, anti-positionalism is an attempt to account for the differential application of non-symmetrical relations without supposing that they are inherently directional. To do so, anti-positionalism appeals to the connections that obtain between the completions to which non-symmetric relations give rise; i.e. to the fact that some, but not other completions are co-mannered completed. When we delve into the microstructure of *co-mannered completion* we discover that it is defined in terms of a more

<sup>20</sup> See Russell 1912, 54–5.

<sup>21</sup> See Duncan-Jones 1934, 85 and Armstrong 1978a, 51–6.

fundamental relation of (single object) substitution. However, substitution is itself a relation (or function) that admits of differential application. Take the state  $aRb$ . The result of substituting  $a$  for  $b$  is the state  $aRa$ ; whereas the result of substituting  $b$  for  $a$  is the state  $bRb$ . Because the outcomes are different, substitution must be order sensitive – sensitive to the order in which substitution relates  $a$  and  $b$  to the completions in which they occur.<sup>22</sup> But how is the anti-positionalist to account for the differential application of substitution?

It appears that there are two options open to the anti-positionalist. He or she can either (i) account for the differential application of substitution in the way that he attempts to account for the differential application of non-symmetric relations in general; or (ii) he can admit that there is at least one inherently directional relation, viz. substitution.<sup>23</sup> To pursue the first option, the anti-positionalist must posit an array of completions that result from the saturation of the substitution relation by the objects and complexes it relates. The anti-positionalist may then account for the differential application of substitution by appealing to the fact that some, but not other of these completions are co-mannered completed. But now regress and circularity threaten to undermine the anti-positionalist account. For what does it mean to say some, but not other, substitution involving completions are co-mannered completed? It must mean that a substitution-like relation interconnects these completions. But what is this relation? If it just is the already familiar substitution relation that the anti-positionalist deploys to account for the differential application of other non-symmetric relations, then anti-positionalism is beset by circularity. But if it is different to substitution, i.e. a more fundamental relation of SUBSTITUTION, then regress threatens. For now an account is owed of the differential application of SUBSTITUTION, and so on. Therefore, on pain of either circularity or regress, the anti-positionalist cannot account for the differential application of substitution. Since positionalism has

<sup>22</sup> Substitution may also be conceived as an order-sensitive function, the order in which substitution applies to its arguments determining which completion is yielded as value.

<sup>23</sup> In a footnote, Fine considers a third option for the anti-positionalist, defining superficially directional relations in terms of relations that lack direction. He considers the objects that *co-mannered completion* is inherently directional: 'For even if [the anti-positionalist] can eliminate the bias from all other relations, will he not need to accept a biased relation of co-mannered completion? It is not clear to me that he is under the same obligation to eliminate the bias in this case. But even if he is, it can be done' (NR, 28 n. 17). Fine then proceeds to offer a definitional reduction of *co-mannered completion* in favour of 'definiens that are all "symmetric"'. However, this reduction only succeeds because *co-mannered completion* was symmetric, and so, arguably, without direction in the first place. This reduction therefore tells us nothing about whether the non-symmetric relation of substitution is inherently directional ('biased'), or not. Fine's suggestion that the anti-positionalist may not be 'under the same obligation to eliminate the bias in this case' is, in effect, option (ii) above. But, unfortunately, Fine does not provide a principle of selection to determine that some, but not other non-symmetric relations are inherently directional. And until such a principle of selection is supplied there can be no assurance that the admission of one biased relation does not open the floodgates to them all.

already been rejected it appears that there is little choice left but to embrace the standard view and admit that substitution itself is inherently directional. And having admitted one inherently directional relation it hardly appears worthwhile to adopt such an abstract and difficult theory to avoid the admission of other such relations.

Second, anti-positionalism cannot accommodate the possible non-existence of exemplar completions. If what makes it the case that (e.g.) *loves* applies to Antony and *Cleopatra* one way, rather than another, is the fact that the actual completion of *loves* by Antony and *Cleopatra* (*Antony's loving Cleopatra*) is co-mannered completed with another exemplar completion (*Abelard's loving Eloise*), then *loves* cannot apply to Antony and *Cleopatra* one way, rather than another, if other completions of *loves* do not exist. But it is (unfortunately) possible for there to be only a singleton occurrence of *loves* in the world and so for no other exemplars of *loves* to exist. What makes *loves* apply one way, rather than another, cannot therefore be constituted by the co-mannered completion of states. It will hardly help to say that a completion of *loves* existentially isolated from other completions of *loves* is configured the way it is because if only other completions of *loves* had existed it would have been co-mannered completed with them. For this implausibly grounds what is actually the case in terms of what is possibly so, and requires the anti-positionalist to enrich the ideology and expand the ontology of their theory in order to make sense of these counterfactual comparisons. It is highly questionable whether it is theoretically responsible to enrich our thinking about relations in this way, simply to avoid the admission of inherently directional relations that conflict with what may only be naïve principles of folk metaphysics (*Identity* and *Uniqueness*).<sup>24</sup>

The possibility of non-existent completions also threatens to undermine the anti-positionalist's conception of the single object substitutions that are supposed to connect co-mannered completions. If  $aRb$  is co-mannered completed with  $cRd$  this is because either (a) the substitution of  $c$  for  $a$  in  $aRb$  gives rise to  $cRb$ , the substitution of  $d$  for  $b$  in  $cRb$  then generating  $cRd$ , or (b) the substitution of  $d$  for  $b$  in  $aRb$  gives rise to  $aRd$ , the substitution of  $c$  for  $a$  in  $aRd$  generating  $cRd$ . But

<sup>24</sup> It may appear that the anti-positionalist has an alternative 'way out' here. If what makes *loves* apply one way rather than another to Antony and *Cleopatra* is that the actual state *Antony's loving Cleopatra* is co-mannered completed with a necessarily existing exemplar, e.g. one of the 'transcendental facts' posited for independent reasons in Fine 2005, then obviously the problem of non-existent completions does not arise. This way out encounters the difficulty that there do not appear to be necessary completions that consist in one individual loving another. So the exemplars in question cannot arise from the saturation of *loves* but only from some other relation. However, as Fine points out, it is difficult to make sense of the idea that completions that arise from the saturation of different relations are co-mannered completed, 'Given the state of  $a$ 's loving  $b$ , for example, we cannot say whether the result of substituting the relation of vertical placement for the amatory relation would be the state of  $a$ 's being on  $b$  or  $b$ 's being on  $a$ ' (*NR*, 30 n. 19).

it is possible that the only occurrences of  $R$  are  $aRb$  and  $cRd$ , and that the other intervening states required to connect  $aRb$  to  $cRd$  via a chain of single object substitutions ( $cRb$  or  $aRd$ ) simply do not obtain. In fact, it is empirically questionable whether even sufficient completions obtain to connect actual states that are co-mannered completed by single object substitutions. What can the anti-positionalist do about this? He can posit an abundant supply of non-obtaining completions that furnish the intermediate links in the chain; declare that when states are co-mannered completed this is because they would have been connected by a chain of single object substitutions if only sufficient other completions had obtained; or, appeal to some higher-order relation that holds of substitution in the absence of relevant lower-order instances and provides a platonic simulacra of the connections between co-mannered completions. In other words, the anti-positionalist cannot avoid taking on further ideological and ontological burdens that further weigh down the anti-positionalist account of differential application.

Anti-positionalism was originally conceived to inherit the virtues, but not the vices of positionalism. The latter doctrine endeavoured to ground the differential application of non-symmetric relations in the internal complexity of relations and their completions. This enabled the positionalist to provide an account of differential application that respected *Identity* and *Uniqueness*; but unfortunately failed thereby to respect the difference between symmetric and non-symmetric relations. Anti-positionalism attempted to avoid the problems associated with positionalism by eschewing positions and grounding the differential application of relations in the network of connections that obtain between complexes: 'The complexity has been transferred, as it were, from the internal structure of the relations to the outward apparatus of application and the concept of a relation has thereby been stripped to its core, without any of the trappings of bias or position by which it was previously encumbered' (*NR*, 32). Fine concludes 'Neutral Relations' upon the reflection: 'The anti-positionalist can therefore claim, with some justification, to have gotten hold of the very essence of our idea of a relation'.

However, the inability of the anti-positionalist to account for the differential application of the substitution relation suggests that bias cannot be entirely stripped away from our idea of relation. The possibility of relations that as a matter of fact relate the same individual to itself, and inherently reflexive relations, suggest that positions cannot be stripped away either. Suppose that the state  $Raac$  is co-mannered completed with  $Rcac$ . How is the anti-positionalist to account for the fact that these states are co-mannered completed? To connect these states directly by a chain of single object substitutions requires  $c$  to be substituted for  $a$  in the former state. But  $a$  does not occur only once in  $Raac$ . Intuitively speaking,  $a$  occurs in two different positions in  $Raac$ , and it will only be possible to effect a transition between  $Raac$  and  $Rcac$  if  $c$  is substituted for  $a$  in its first occurrence, whilst leaving its second undisturbed. Of course having renounced positions, the

anti-positionalist cannot constrain the substitution of  $c$  for  $a$  in this way. So the anti-positionalist is obliged to account for the fact that  $Raac$  and  $Rcac$  are co-mannered completed by connecting these states in some less direct fashion.

To do so, the anti-positionalist may appeal to an exemplar of  $R$  – e.g.  $Rdef$  – a completion in which, intuitively speaking, different objects occupy different argument positions. Because different objects occupy different positions in  $Rdef$ , the difficulty does not arise of which occurrence of an object is to be substituted for to effect the transition to another state. This means that  $Raac$  may be straightforwardly derived from  $Rdef$  by a chain of single object substitutions:  $a$  may be substituted for  $d$  in  $Rdef$  to give rise to  $Raef$ ;  $a$  may be substituted for  $e$  in  $Raef$  to generate  $Raaf$ ; a final substitution of  $c$  for  $F$  in  $Raaf$  terminates the sequence in  $Raac$ . By another chain of substitutions,  $Rcac$  may be similarly derived from  $Rdef$ . The anti-positionalist may then maintain that  $Raac$  and  $Rcac$  are co-mannered completed because they are derived from a common source, viz a favourable exemplar of  $R$ . But this assumes that a favourable exemplar of  $R$  exists, and it is surely possible that no such exemplar exists, that as a matter of fact  $R$  only occurs in completions in which some objects are related to themselves.

To accommodate this possibility, the anti-positionalist may again appeal to non-obtaining exemplars, or to the chains of substitution that would have obtained if exemplars had existed. But even these expedients will not help the anti-positionalist explain the possibility of inherently reflexive relations, relations for which no favourable exemplars possibly exist, but a completion of which intuitively consists of at least one object occupying more than one position. Moreover, the theoretically leaner, and more natural solution is to admit that (e.g.)  $a$  has multiple occurrences in  $Raac$ , and that  $Rcac$  is simply the result of substituting  $c$  for  $a$  in one occurrence whilst  $Racc$  is the result of substituting  $c$  for  $a$  in its other occurrence. The anti-positionalist renounced occurrences (positions) because of the difficulties that the positionalist encountered when attempting to account for differential application solely in terms of positions. But this is an overreaction. From the fact that positions alone cannot account for differential application it does not follow that positions cannot perform a partial, but nevertheless significant role in accounting for differential application. And it is now clear that there is a significant role for positions to perform in distinguishing between the different results of substituting for objects that occur more than once in a completion.

The suspicion that anti-positionalism has gone too far in entirely stripping positions away from relations is further confirmed when we reflect upon the different forms that relations are capable of possessing. According to Fine, it is a distinctive failing of positionalism that it cannot readily accommodate the possibility of variably polyadic (or multigrade) relations. This is because the positionalist pictures a relation as a perforated body whose holes correspond to the different argument places of the relation. Each relation is thus endowed with a

definite number of argument positions that rigidly fix the way that the relation is capable of being saturated by objects to give rise to its completions. By contrast, the anti-positionalist view, pictures a relation as ‘a simple unadorned body’. Consequently ‘there is no impediment to a relation being variably polyadic, since there are no preordained positions by which the number of arguments might be constrained’ (NR, 22). However, there are other relations that do come equipped with a fixed adicity. Under the positionalist view there is a ready account of this fact in terms of the number of positions belonging to a relation. By contrast, under the anti-positionalist view, there are no pre-ordained positions by which the number of arguments might be constrained. So whilst the positionalist view makes it difficult to see how any relation could be variably polyadic, the anti-positionalist view has the corresponding failing of making it difficult to see how any relation could be definitely  $n$ -adic. This suggests that the truth about relations lies neither in positionalism, nor in anti-positionalism, but in some other view that pictures relations in some radically different way.

### 9. Conclusion

Positionalism and anti-positionalism endeavour in their different ways to unravel our ordinary thinking about order, to account for the differential application of non-symmetric relations whilst avoiding a commitment to the notion of *direction* that distinguishes a non-symmetric relation from its converse. The difficulties that positionalism and anti-positionalism encounter suggest that differential application cannot ultimately be explained without appealing to the notion of *direction*, that the strands of our ordinary notion of *order* cannot ultimately be separated out. We must therefore return to the basic puzzle about order that originally motivated the effort to disentangle differential application from *direction*. We must think of a different way to accommodate the intellectual pressures that give rise to the puzzle without breaking the connection between differential application and *direction*.

What was the puzzle? If we account for differential application by saying that non-symmetric relations have a direction (apply to their relata *in an order*) then it appears there is no way of avoiding a commitment to both non-symmetric relations and their converses. But a commitment to both non-symmetric relations and their converses threatens to overpopulate reality. The admission of converse relations either results in a proliferation of completions that intuitions tell us aren’t there (*Identity*); or, it results in what intuitively appears to be a superfluity of relations giving rise to the same completion (*Uniqueness*).

One way of responding to this puzzle is to deny that an account of differential application that employs the notion of *direction* is thereby committed to *both* non-symmetric relations and their converses. It is true enough that there is no *logical*

foundation for admitting *greater* but not *less*, *before* but not *after* etc., and this tempts us to think that if we are committed to one of these relations, then we are also committed to its converse. But it also seems that when it comes to providing an adequate description of reality there is no need to employ predicates for both non-symmetric relations and their converses. Consider (e.g.) the possibility of restricted forms of English that result from deleting either ‘after’ ( $E-$ ) or ‘before’ ( $E=$ ) from our vocabulary. Prima facie both  $E-$  and  $E=$  would be expressively adequate for the purpose of stating which events succeed which others. This means we have no reason to suppose a non-symmetric relation *and* its converse exist; in order to sustain the truths of ordinary discourse, reality does not need to include *before* and *after*. This raises the possibility of a *natural* foundation for admitting a symmetric relation but not its converse. In other words, that it is the way that reality itself is jointed that selects whether it is ‘before’ or ‘after’ that correspond to a genuine relation.

This proposal renders the existence and non-existence of non-symmetric relations and their converses, and the semantics of the predicates that denote them (if they do), deeply unfathomable. There is no conceivable scientific, mathematical or semantic evidence that could count in favour of admitting a non-symmetric relation but not its converse. There is no prospect of mathematicians, physicists or semanticists waking up one morning to declare (e.g.) that, lo and behold, the predicates ‘less than’ and ‘before’ are empty (or merely denote logical constructions), and that it is the relations *greater than* and *after* that truly exist. Of course, it is doubtful whether inscrutability of reference can be eliminated in general. Nevertheless, it appears that this is an especially pernicious form of inscrutability that prevents us (in principle) from achieving insight into the radically different semantics of ‘before’ and ‘after’, ‘greater than’ and ‘less than’, and so on. This at least provides motivation for continuing to search for another way out of the basic puzzle about non-symmetric relations.

If we are not to break the connection between differential application and *direction* it appears that the only other ways out of the puzzle must involve admitting non-symmetric relation and their converses, but denying that this threatens to overpopulate reality.<sup>25</sup> In short, we must give up either *Identity* or *Uniqueness*. *Identity* is a principle garnered from what appear to be relatively robust intuitions. By contrast, *Uniqueness* is more questionable, and the general thesis that completions are possessed of a unique decompositions has been found want-

<sup>25</sup> Dorr suggests another way out (see Dorr 2004, 180–3): deny that there are any non-symmetric relations, and maintain that we can make do in our theorising about the world with symmetric relations. However, I am sceptical that non-symmetric relations can be systematically eliminated; where we appear to have eliminated non-symmetric relations, I conjecture, we only appear to have done so and, in fact, have simply swept them under the theoretical carpet. Unfortunately, for reasons of space, discussion of this way out will have to be postponed for another occasion.

ing in more theoretical contexts that concern more abstract subject matters (for example, the fruitfulness of deduction).<sup>26</sup> The fundamental appeal of this principle is a consequence of what Fine describes as ‘metaphysical good sense’ (*NR*, 15–6). If the completion *A*’s *being before B* has more than analysis, one analysis revealing *before*, another revealing *after*, then surely there is a need to explain how these two decompositions give rise to a *single* completion. Otherwise, it appears, we are presented with the intellectually unsatisfying ‘brute fact’ – a fact of the kind that Hume inveighed against – that the distinct existences *before* and *after* are correlated together, destined forever to dance around one another in a circle of instantiation. What the difficulties confronted by positionalism and anti-positionalism suggest, however, is that the account of differential application that respects *Identity* and *Uniqueness* is not to be had. Perhaps, therefore, it is our explanatory expectations that are askew, and it is our Humean tendencies that must be set right before we can come to a satisfying understanding of non-symmetric relations.\*

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<sup>26</sup> See Hodes 1982 for an illuminating account of the polymorphous composition of completions from a Fregean point of view.

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