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Non-Symmetric Relation Names

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Is it possible to name non-symmetric relations? If non-symmetric relations had distinct converses, then the difficulty of picking out and distinguishing a non-symmetric relation from its converses would plausibly present an insuperable obstacle to introducing names for them. But we argue that if non-symmetric relations lack converses, then the aforementioned difficulty does not arise. Moreover, we argue, at the semantic level, that English or modest extensions of English have the expressive resources to name non-symmetric relations whose adicity is greater than 2. Van Inwagen's case that it is impossible to name non-symmetric relations serves as our foil.

Can we name non-symmetric relations? If we cannot name them but only express relations with predicates, then we end up in an awkward predicament akin to Frege's paradox of the concept *horse*. Suppose the predicate "*x* loves *y*" expresses a dyadic non-symmetric relation. What relation does this predicate express? If we cannot name non-symmetric relations, then we cannot answer that question. The grammar of the question requires a name, or a definite description capable of figuring in the grammatical position of a name, to answer it—for example, "the relation of loving." If so, we are left in the awkward predicament of being unable to make the non-symmetric relation "*x* loves *y*" express the literal subject of our discourse, even though it is right under our noses and expressed by a familiar predicate. Frege's paradox of the concept *horse* is similar in the following respect. Predicates refer to concepts, according to Frege. But if we try to say what concept the predicate "*x* is a horse" refers to, we must use a name or definite description—for example, "the concept *horse*." But, by Frege's lights, names and definite descriptions pick out complete things, whilst the referents of predicates are incomplete. So "the concept *horse*" cannot pick out the referent of "*x* is a horse" (Frege 1892). Our inability to say what non-symmetric relation or Fregean concept a given predicate expresses speaks in favour of nominalism. Why believe in things

as semantically awkward as non-symmetric relations or Fregean concepts, things that are resistant to being named?

But suppose we can neither name nor readily give up non-symmetric relations because their existence follows from other things we say. Then our predicament is both awkward and apparently inescapable. According to van Inwagen, this is indeed the predicament in which we find ourselves with respect to object-language reference to non-symmetric relations—although he does not draw our parallel with Frege.

In this paper, we argue that we need not succumb to van Inwagen's predicament.[1] At the ontological level, we are not committed to distinct converses of non-symmetric relations by our use of converse predicates. At the semantic level, we do have the resources in English, or modest extensions of English, to name relations within the object language. Many other natural languages have equal resources of this kind, or even better resources than English. The resulting perspective at which we arrive is one that vindicates the realist tradition not only because it recognizes that we can quantify over universals (relations) and employ predicates to express them, but also because it allows singular statements about them. We have reason to believe in the existence of universals (relations) because, inter alia, we are able to make statements in which a name is used to pick out a universal (relation) and the rest of the statement in question is used to characterise *it*.

1. The Case against Relation Names

Distinguish two classes of assertions: (a) assertions we make in order to describe how things are qualified, what they are doing, or the kinds of things they are; (b) assertions we make to describe how things are arranged or related. In English, we employ adjectives, nouns, and intransitive verbs to make assertions of the first class, whereas we also call upon transitive verbs, prepositions, and the paraphernalia of grammatical case to make assertions of the second. According to van Inwagen (2004, 2006), we have reason to believe in properties and relations because their existence follows, respectively, from the fact that assertions of the first class are said of only one thing, whilst assertions of the second class can only be said of two or more things. Suppose we assert that Delphi is north of Thebes. Then there is *something* asserted of Delphi

1 See MacBride (2011) for a related argument to the effect that we need not succumb to Frege's predicament either.

and Thebes, something we can't assert of them separately but only relative to one another. The thing asserted is a dyadic non-symmetric relation—van Inwagen calls it a "doubly unsaturated assertible." So we have the same reason for believing in non-symmetric relations as for properties. Properties and relations are both asserted of things, albeit different numbers of things. Our commitment to them is inescapable because the existence of properties and relations follows from the assertions we make. But, van Inwagen argues, we cannot give a name to the relation we assert of Delphi and Thebes when we assert that Delphi is north of Thebes, or to any other non-symmetric relation. By contrast, van Inwagen maintains, the "singly unsaturated assertibles" we assert of someone when we declare she/he is wise or loves honour more than life, i.e., properties, have names even in natural language—"wisdom" and "loving honour more than life." There's a further awkwardness here we haven't mentioned before. According to van Inwagen, properties are monadic relations, i.e., a limiting case of relations. So it's an embarrassment for realists like him that monadic relations can be named but $n > 2$-adic non-symmetric relations cannot.

Why does van Inwagen take non-symmetric relations to be such troublesome creatures? He claims we have good reason to believe in such relations because they are expressed by ubiquitously employed vehicles of assertion, viz., open sentences with two or more free variables. Grant him this. Then a closed term resulting from the application of an operator to an open sentence of two or more variables would be an exemplary name of the relation expressed by that open sentence—provided that the diversity and arrangement of the variables be respected in the binding of them. Such a closed term would be exemplary in the sense that if there were such an operator, then the open sentence expressing the relation could be retrieved from the closed term in which its two or more variables are bound by the aforementioned operator. Van Inwagen calls such closed terms "formal names" of relations because they would reveal or make manifest the relations they purport to denote. But, he argues, we lack any understanding in English, or even philosophers' English, or any extension of our language, of such an operator, so there are no formal names for relations.

Van Inwagen argues for this conclusion by eliminating one after another of what he takes to be all the plausible candidates for an operator that would yield formal names of relations. Key to his argument is what he describes as a metaphysical assumption that applies to all $n > 1$-adic relations. He states this assumption for the case $n = 2$ as follows: "Every dyadic relation has

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at least one converse; there are non-symmetrical dyadic relations; no non-symmetrical dyadic relation is identical with any of its converses" (2006, 453). Call it "(*MetaA*)," short for "Metaphysical Assumption." Van Inwagen refers to (*MetaA*) as a single assumption, but we note that it really is a conjunction of three separate assumptions. (*MetaA*) will be critical for our case against van Inwagen. (*MetaA*) entails that every non-symmetric relation has a distinct converse. This raises the bar for a closed term succeeding in being a formal name of a non-symmetric relation; to pick out a non-symmetric relation, a formal name must enable us to discriminate the relation in question from its converse(s). Van Inwagen argues that we have no inkling of an expression we understand that reaches that bar.

Focusing initially upon the $n = 2$ case, he takes the binary lambda abstraction operator as an example of an operator that appears to fulfil the brief of yielding formal names for dyadic non-symmetric relations because it's a device that binds the variables in an open sentence to yield a closed expression. Consider, for example,

(1) λxy x is north of y.

Is there a reading of (1) in English or philosophers' English that confirms it to be a formal name of a non-symmetric relation? The kinds of constructions that philosophers typically draw upon to talk about relations are "r holds between x and y" and "x bears r to y." So the two most obvious readings of (1) are:

(2) The relation that holds between x and y if and only if x is north of y,

and

(3) The relation that x bears to y if and only if x is north of y.

Van Inwagen objects to both.

The problem he finds with (2) is that it is an improper description if (*MetaA*) is granted and the predicate "holds between x and y" is understood as an order-insensitive construction, so that, for example, "holds between Denmark and Italy" is synonymous with "holds between Italy and Denmark." Take a relation $R1$ that holds between two things whenever one is north of another. Then, by (*MetaA*), $R1$ has at least one converse, $R2$. But if $R1$ holds between two given things, then $R\mathbf{2}$ holds between those same things too. Think of $R1$ and $R2$ provisionally as the relations *being north of* and *being south of*—provisionally

because van Inwagen's aim is to undermine any confidence that we can pick out non-symmetric relations and distinguish them well enough to give them names or definite descriptions. *R*1 and *R*2 apply to the things they relate in different orders. But "*R* holds between *x* and *y*" is order-insensitive, so it cannot capture the information that distinguishes a relation from its converse. So (2) doesn't distinguish *R*1 from *R*2. But if (1) is to be a formal name of a relation, it must be read as a definite description proper.

The obvious fix to (2) is to augment the "*R* holds between *x* and *y*" construction to make it order-sensitive:

(2.1) The relation that holds between *x* and *y* in that order if and only if *x* is north of *y*.

The thinking behind (2.1) is that adding "in that order" to (2) makes it semantically sensitive to the syntactic order in which the terms occur, so we can exploit that order to encode information about how the relation applies to the things those terms pick out. But van Inwagen argues that "in that order" introduces an unwanted lapse of extensionality. He considers the "*x* and *y*" in (2.1) a plural term. Replacing the variables with names (e.g., "Denmark and Italy"), he claims, will yield an expression that co-refers with any plural term that results from a permutation of those names (like "Italy and Denmark"). But the former plural term is not substitutable *salva veritate* for the latter in (2.1), even though (van Inwagen maintains) the plural terms in question are co-referring.

To avoid this lapse of extensionality, van Inwagen envisages augmenting (2) by explicitly specifying the order in which the relation in question relates the things named,

(2.2) The relation that holds between *x* and *y* in the order "*x* first, *y* second," if and only if *x* is north of *y*.

But van Inwagen dismisses (2.2) because he cannot make any sense of this absolute, metaphysical notion of order. He raises the rhetorical question, "But what is it for a relation to hold between—for example—Italy and Denmark in the order 'Denmark first, Italy second'? You may well ask" (2006, 460). Having raised the rhetorical question, van Inwagen moves along.

Unable to envisage another way of converting (2) into a proper description that distinguishes a relation from its converse(s), van Inwagen gives up on (2) and turns to (3), which is not vulnerable to the objections above. By contrast

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to "the relation that holds between x and y," definite descriptions of the form, "the relation that x bears to y" are order-sensitive. If a non-symmetric relation $R1$ is borne by one given thing to another, then its converse $R2$ isn't.

So far as (3) is concerned, so good: van Inwagen has no objection to using (3) as an English or at least philosophers' English reading of (1) itself. But we don't just need to understand (1), the formal name of a dyadic non-symmetric relation. We also need to understand all the closed expressions that result from the application of n-ary abstraction operators where $n > 2$, in order to provide formal names of $n > 2$-adic non-symmetric relations. Van Inwagen's objection to (3) is then that the construction "the relation that x bears to y" is expressively inadequate to this more general task. It has only two argument positions. So it lacks the logical multiplicity to provide, for example, an interpretation of a closed expression resulting from binding an open sentence of three free variables with a ternary abstraction operator, like "λxyz x gives y to z."

Van Inwagen considers augmenting the expressive power of "the relation that x bears to y" by inserting plural terms (such as "Denmark and Italy") into one of its argument positions. Using this augmentation, we can form the following two definite descriptions of a non-symmetric triadic relation: (i) "the relation that x bears to y and z" and (ii) "the relation that x and y bear to z". But because the plural term-forming operator "and" is order-insensitive, (i) is equivalent to (iii) "the relation that x bears to z and y", whilst (ii) is equivalent to (iv) "the relation that y and x bear to z". So there are only two ways of so describing a triadic non-symmetric relation. Van Inwagen doesn't make his objection explicit, but presumably the upshot is that (i) and (ii) are only suited to describe triadic relations that are indifferent to the permutation of two of the things they relate (like *x is between y and z*) but unsuited to the description of fully non-symmetric relations, which are sensitive to the permutation of any of their terms (like *x gives y to z*).

Having thus dispensed with what he thinks are the only plausible candidates for providing informal readings of (1), van Inwagen turns to what he deems to be the last resort of believers in formal names for relations. The last resort is taking (1) as a primitive name for a non-symmetric relation without needing to translate it into English or philosophers' English. Van Inwagen acknowledges that we understand lambda-abstracts like (1) and his favoured "canonical relation names", which are a variation on lambda abstracts, well enough to calculate the truth-values of the sentences in which they occur but not well enough to settle a unique reference for such lambda-abstracts: "[W]e know how, using the semantics, to calculate the truth-values of relation sen-

tences with two relational terms. But—it seems to me—we have no idea what these sentences mean or what the relational terms refer to" (2006, 468). This is because our grasp of a lambda abstract or a canonical relation name does not proceed via an identification of its referent but only via a determination of the truth conditions of the contexts in which it occurs. So we don't know which relation the lambda abstract picks out, but only that the entire context in which it features, a relation sentence, is equivalent to a context in which it doesn't, a non-relational counterpart. Ipso facto, the semantics doesn't tell us which out of a range of mutually converse relations a lambda abstract or a canonical relation-name for a non-symmetric relation denotes. So if (*MetaA*) holds, (1) can't be a formal name of a non-symmetric relation after all.

Let's sum up. Van Inwagen has argued that we cannot provide an English or philosophers' English reading of lambda abstracts like (1) in terms of constructions like (2) or (3) or their emendations, nor can we understand lambda abstracts like (1), or his favoured canonical relation names, in the absence of a translation into English or philosophers' English. Van Inwagen's case against names for non-symmetric relations relies upon the metaphysical assumption that non-symmetric relations have distinct converses, a consequence of (*MetaA*). Because we inhabit a metaphysical environment abundant with converse relations, singling out a given non-symmetric relation requires distinguishing it from its converse(s). Because, he claims, we cannot single out a non-symmetric relation from its converse(s), he concludes that we cannot understand or introduce a name for the (purported) relation in question.

2. Relation Names and the Metaphysics of Non-symmetric Relations

The master assumption behind van Inwagen's arguments is that non-symmetric relations have distinct converses. We present two independently attractive conceptions of non-symmetric relations, according to which they don't have distinct converses. So, from their points of view, there's no need to distinguish a non-symmetric relation from its converse in order to understand its name. For present purposes, we don't decide between these different conceptions because van Inwagen's case that we cannot name relations presupposes both are false, but he doesn't provide arguments that rule out either.

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Consider the statements (a) "WWI is before WWII" and (b) "WWII is after WWI". Evidently, they are mutually entailing in the sense that it's not possible for one to be true and the other false. Now distinguish "abundant" from "sparse" semantics for these sentences—in virtue of the contrasting number of non-symmetric relations to which accounts of these kinds are committed. According to accounts of the abundant kind, under which van Inwagen's view falls, the binary predicates "*x* is before *y*" and "*x* is after *y*" are used to ascribe two distinct relations—two distinct but mutually converse non-symmetric relations. So whilst (a) reports upon the obtaining of one non-symmetric relation, (b) reports upon another, the converse of the first. Nevertheless, (a) and (b) are mutually entailing because it is in the nature of this pair of relations that in any possible circumstance where one holds between *x* and *y*, the other holds between *y* and *x* (for any *x* and *y*). The mutual entailment of the statements (a) and (b) thus has a distinctively ontological source in the "metaphysical entanglement" of the converse relations expressed by their respective predicates—that, as a matter of metaphysical necessity, whenever one relation holds one way, its converse holds the other way.

By contrast, according to accounts of the sparse kind, "*x* is before *y*" and "*x* is after *y*" express one and the same non-symmetric relation. So (a) and (b) report upon the obtaining of one and the same relation; they differ because their constituent predicates invoke converse rules for evaluating the significance of the statements in which they occur. The mutual entailment of (a) and (b) is a consequence of the semantic entanglement of their constituent predicates—that, as a matter of the rules of our language, what we say when we make use of one of these predicates flanked by singular terms in one arrangement is the same as what we say when we use the converse predicate flanked by the same singular terms in the reverse arrangement. Whether we choose to use (a) or (b) depends upon pragmatic factors, i.e., which event it suits our conversational purposes to mention first, i.e., left-most, in the sentence we use to make the report. In the same way, we consider the mutual entailment of statements whose terms have been permuted but respectively involve the active and passive forms of a verb, e.g., (c) "Antony loves Cleopatra" and (d) "Cleopatra is loved by Antony", to be explained in terms of the contrasting rules governing active and passive forms rather than a necessary connection between the diverse relations they introduce. It's not a choice of subject matter but conversational pragmatics, if not simply a stylistic predilection, that makes us prefer one form rather than another to describe how Antony and Cleopatra are related.

We distinguish between *iconic* and *role-theoretic* versions of the sparse account and present a thumb-nail sketch of each.

(ICONIC) By the iconic version, we mean the view that language users succeed in representing how things stand in relation to one another by exploiting the fact that linguistic signs stand in relation to one another too.[2] We succeed in representing how things stand by using arrangements of signs to model the arrangement of things, the things in question being the things the signs stand for. Different arrangements of signs may serve equally well to model the same arrangement of things. We can exploit the fact that a given occurrence of a name, say "WWI", stands in a relation of left-flanking to an occurrence of a predicate, which is right-flanked by an occurrence of "WWII", to model WWI's preceding WWII. But we can equally well model WWI's preceding WWII by using an arrangement of signs in which an occurrence of "WII" stands in a relation of left-flanking an occurrence of a predicate that is right-flanked by an occurrence of "WWI". When we use "x is before y" to frame a token sentence, we understand as a matter of convention that it is the former modelling technique that is being exploited to represent which event precedes another, whereas when we use "x is after y", we understand as a matter of convention that it is the latter technique in play. *Eo ipso*, we understand that (a) and (b) say the same thing because, whilst they consist of different arrangements of signs, the different modelling conventions associated with their predicates co-ordinate them with the same worldly arrangement of events. We also understand that (e) "WWII is before WWI" isn't entailed by (a) because (e), consisting of a different arrangement of signs, models a different arrangement of events.

(ROLE) By the role-theoretic version, sometimes called positionalism, we mean the view that relations apply to things in virtue of their having "roles" or "positions" which are filled by their relata, where roles or positions are conceived as *bona fide* entities—by contrast to the iconic view, which treats role and position-talk along deflationary lines, so, roughly speaking, "*a* occupies

2 Called "iconic" after Peirce (1903, 273–274), who conceived of iconic diagrams as representing "relations, mainly dyadic, or so regarded, of the parts of one thing by analogous relations in their own parts." Wittgenstein's "picture theory" is similar: "That the elements of the picture are combined with one another in a definite way, represents that the things [in the world] are so combined with one another" (1922, 2.15). See MacBride (2018, 191–197; 2024a, sec. 1) for further historical and philosophical development of the iconic view.

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the *before* role whilst *b* occupies the *after* role" reduces to "*a* is before *b*".[3] Roles or positions may be understood as somehow corresponding to the thematic roles widely appealed to in linguistics, such as *agent*, *patient*, *instrument*, *beneficiary*, *goal*, *location*, *source*, *destination*, etc. (See Davis 2011.) Or as rigidly associated with specific predicates, so that we can speak, e.g., with respect to "*x* loves *y*" of *lover* and *beloved*, with respect to "*x* gives *y* to *z*" of *giver*, *givee*, and *given* positions. We favour the former view (so far as role-theoretic views are concerned) because it enables us to capture generalisations about what different relations have in common, e.g., agent/patient structure, but do not press the point here. Our grasp of predicates, such as "*x* loves *y*" and "*x* is loved by *y*", that express the same relation relies upon an understanding of converse conventions about how to represent the manner in which roles or positions in the relation are filled. We understand that an occurrence of a name left-flanking "*x* loves *y*" denotes what fills the *agent* role or *lover* position of the relation the predicate picks out, and the corresponding occurrence of a right-flanking name what fills its *patient* role or *beloved* position, whereas the occurrence of a name left-flanking "*x* is loved by *y*" denotes what fills the *patient* role or *beloved* position, and the corresponding occurrence of a right-flanking name what fills the *agent* role or *lover* position. The upshot is that (c) and (d) say the same thing because they co-ordinate the same items to the same role or position of the same relation. We also understand that (c) doesn't entail (c′) "Antony is loved by Cleopatra", because (c′) represents a different assignment of items to roles or positions.

Such sparse accounts, according to which "*x* is before *y*" and "*x* is after *y*" co-refer, appear to be open to a knock-down objection: members of a pair or family of mutually converse predicates cannot co-refer because one cannot be substituted for another whilst preserving truth-value in extensional contexts. For example, if we substitute "*x* is after *y*" for "*x* is before *y*" in (a) "WWI is before WWII", the result is (h) "WWI is after WWII", so we pass from truth to falsity. Similarly, moving from (i) "Obama is a former president" to (j) "Biden is a former president", we pass from truth to falsity—this is enough to settle that "Obama" and "Biden" don't co-refer (see Quine 1960, 142–143). But this objection isn't knock-down because substitution failure amongst converse predicates doesn't have to mean that the predicates in question don't

3 See Williamson (1985, 257–258) and Orilia (2011) for different developments of the role-theoretic view.

co-refer (see MacBride 2011, 307–309; 2024b). It need only mean that converse predicates don't just refer but refer relative to the aforementioned converse rules, whether spelled out in terms of the iconicity of our representations or rules involving roles/positions. We conclude that it's not because converse predicates don't refer to the same relation that substituting one of them for another may fail to preserve truth-value. It's because such a substitution forces a reinterpretation of the linguistic context in which the predicate occurs, i.e., the semantic significance of the left and right flanking singular terms.

Van Inwagen (recall) dismissed with incredulity the hypothesis that non-symmetric relations hold of their relata in an order—where the notion of order is an absolute and abstract metaphysical notion, as Russell once maintained (1903, sec. 94). We note that neither the iconic nor role-theoretic accounts are committed to relations holding of their relata in an order (in the metaphysical sense of which van Inwagen disapproves). The iconic account exploits case-by-case conventions, depending upon the operative predicate, co-ordinating the manner in which the terms of a sentence are arranged with the manner in which a relation holds amongst the things for which the terms stand if the sentence is true. Here, the notion of "manner" isn't elliptical for some general notion of order. It's schematic, to be filled out in particular cases with reference to the relevant conventions. There is no more need, we maintain, to expect there to be a single rule governing the use of predicates than there is a need for a single rule governing adjectives—because we have to learn piecemeal, for example, whether adjectives are intersective, subsective, or non-subsective (see Lassiter 2015). For example, with regard to (a), we exploit the convention that the left-flanking term stands for something that precedes the event for which the right-flanking term stands if (a) is true.[4] So there's no appeal to one event coming first, the other second, in some absolute, metaphysical sense of order (although in this case, one is first and the other second in temporal order). The role-theoretic account also exploits case-by-case conventions. Which convention we use depends upon the operative predicate in a sentence and the syntactic arrangement of the terms in the sentence. The convention in play co-ordinates the things for which the terms stand with the roles or positions of the relation that the operative predicate denotes. This obviates the need to appeal to one thing coming first, another second in an absolute metaphysical sense in favour of a co-ordination of things picked out with roles or positions.

4 We assume, but do not argue here, that "precedes" denotes a dyadic relation.

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We do not adjudicate here between the iconic and the role-theoretic views. What is important for present purposes is that both avoid converse relations. Van Inwagen's case that we fail to grasp relation names depends upon the existence of converse relations, but he provides no argument to rule out either view. So he fails to establish his conclusion.

Van Inwagen does acknowledge the possibility that his conclusion, that we have no grasp of relation names, might be taken as a *reductio ad absurdum* of the hypothesis that non-symmetric relations have distinct converses. Nevertheless, he declares (*MetaA*) "an assumption I refuse to forego" and accordingly offers "some intuitive considerations in favor of the existence of non-symmetrical dyadic relations" (2006, 453–454). He argues that there are things that can be said of two people in two different ways and may be true of them said one way but not the other—things that aren't predicates or any other kind of linguistic item but dyadic non-symmetric relations. But even if van Inwagen succeeds thereby in establishing (I) that there are non-symmetric relations, it doesn't follow (II) that every non-symmetric relation has at least one converse, nor (III) that no non-symmetric relation is identical with any of its converses.

In other words, the intuitive considerations that van Inwagen adduces speak in favour of one component of (*MetaA*) but not the other two. Hence, such considerations don't entitle him to refuse to forgo (*MetaA*) in all its parts. But the metaphysical hypothesis upon which van Inwagen relies to establish that we lack a grasp of relation names, viz., that every non-symmetric relation has at least a distinct converse, doesn't rely upon just one component of (*MetaA*) but all three; the hypothesis in question doesn't follow from (I) alone but only from (I) taken together with (II) and (III). Because van Inwagen fails to provide support for (II) or (III), he fails to rule out the legitimacy of others taking a modus tollens where he has taken a modus ponens. Meanwhile, we have argued in this section that (II) is false upon an iconical or role-theoretic conception.

3. Relation Names in English and Extended Versions of English

Let us turn to the question of the expressive adequacy of English with respect to non-symmetric relations—the extent to which English as it is, or an extended version of English, allows us to form names or definite descriptions

for non-symmetric relations. We argue that, suitably augmented, both the "holds between" and the "bears" constructions provide us with a supply of definite descriptions for non-symmetric relations with the requisite logical-grammatical multiplicity to express n-ary relations where $n > 2$, definite descriptions we really do understand.

We agree with van Inwagen that to be adequate for framing names for non-symmetric relations, the "holds between" construction requires to be supplemented with the "… in that order" operator. Van Inwagen (recall) maintains that this requirement cannot be fulfilled because, either, the notion of order invoked is syntactic, in which case there is a violation of extensionality, or this notion is metaphysical, but this is hardly acceptable. We also agree with van Inwagen that an absolute, metaphysical notion is hardly acceptable. But we deny that conceiving the "… in that order" operator in syntactic terms as sensitive to the syntactic order of the terms of the contexts in which it occurs results in a violation of extensionality.

Certainly the phrases (A) "Denmark and Italy in that order" and (B) "Italy and Denmark in that order" have different semantic significance—when "… in that order" is understood in the syntactic terms we favour. But there's only reason to think there's been a violation of extensionality if we go along with (at least) the further assumption upon which van Inwagen relies, viz., that the plural terms "Denmark and Italy" and "Italy and Denmark" occur as semantically significant ingredients of these phrases. But we don't grant this assumption because it isn't an independently plausible assumption to make.

Why so? The operator "… in that order" is responsive to the order in which the preceding singular terms occur. It isn't responsive to the singular terms *en bloc* as one plural term. So there's no reason to think that this operator has just a single argument position for one plural term; the plural term is an idle wheel in the semantics because what counts is the order of the singular terms—from a mid-20th century failure to take plural terms seriously, we shouldn't leap to seeing plural terms wherever there's a list. For this reason, we think that it is more reasonable to take "… in that order" as a multigrade, order-sensitive operator—multigrade because the number of occurrences of singular terms preceding it may vary depending upon the polyadicity of the relation described in the sentences in which it occurs (MacBride 2005). But if (A) and (B) don't have semantically significant occurrences of plural terms, then there is no ostensible violation of extensionality because each occurrence of a name is open to substitution by a co-referring expression. We can even substitute definite descriptions, for example, "the European country shaped

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like a boot" for "Italy". We conclude that (2.1) serves perfectly well as an informal reading of (1) translated into philosophers' English. So, we conclude, it is already possible to form names for non-symmetric relations in English, or at least philosophers' English, using the "holds between" construction.

We also hold that the "x bears R to y" construction, that occurs in (3) above, can be augmented with enough grammatical-logical multiplicity to cover $n > 2$-adic relations. It's the grammatical articulation of the verb "bears", as it is used in current English or philosophers' English, that suits it to describing the manner in which dyadic non-symmetric relations hold of the things they relate. The grammatical articulation of the construction as it is currently used could be displayed thus: "[subject] bears [direct object] to [indirect object]." The position of a direct object is taken by a relation name, whilst the term that denotes the thing that is said to bear the relation in question and the term that denotes the thing to which the relation is borne take subject and indirect object positions, respectively. We are able to express the two different ways that a dyadic non-symmetric relation is capable of applying to two given things by permuting the terms that stand for them between the subject and indirect object positions of the verb ("a bears the relation $R1$ to b", "b bears the relation $R1$ to a"). But the grammatical categories that we exploit to express the manner in which dyadic non-symmetric relations apply are inadequate to triadic cases. This is because, as van Inwagen reflects, "subject and indirect object are *two* grammatical categories, and there is no third category that can be used to create a form of words that stands to triadic relations as '…bears…to…' stands to dyadic relations. (The category 'direct object' is already taken: the relation is the direct object of 'bears')" (2006, 477, n.28, italics in original).

We agree that the English verb "bears" lacks the requisite number of associated grammatical categories to describe the holding of a triadic non-symmetric relation. But we disagree that English or philosophers' English need be this way. This is because we think it is only a contingent fact about English that the verb "bears" has only three grammatical categories associated with it, so only the wherewithal to describe the holding of a dyadic relation. And if this is only a contingent fact about English, we see no barrier to enriching English or philosophers' English to include a novel grammatical category to be associated with the "bears" construction to encode information about the occurrence of the third term of a non-symmetric triadic relation, a further novel category to encode information about the occurrence of the fourth term of a tetradic non-symmetric relation, and so on as the need arises.

Perhaps you are doubtful that it is a contingent fact that "bears" has only three grammatical categories associated with it. Or perhaps you think we should be cautious about the question of whether we could really understand a version of English enriched with additional grammatical categories. Or perhaps you think we can only really understand such enrichments insofar as they can be elucidated in terms of the English we already understand—as Strawson argued against Carnap's tolerant employment of novel linguistic systems (see Carnap 1934, sec. 17; and Strawson 1963, 518). But our own estimation is that there is a narrow but traversable path to tread between outright scepticism, thinking that we just don't understand novel forms, and wishful thinking that we invariably do understand novel forms.

Outright scepticism can't be right because languages have been expressively enriched and are being expressively enriched for scientific and other theoretical purposes all the time—something that philosophers are often keen to point out to license the introduction of their own novel technical vocabulary. What is no less significant for the present discussion, but not to our knowledge pointed out by philosophers anywhere else, is that there are certain respects in which many natural languages have become expressively *impoverished* over time. For example, many Indo-European languages had more grammatical categories in the past than they do now. It would seem perverse to think that what was possible for our forebears to understand isn't possible for us. But, we also grant, it is important to beware of wishful thinking too because the marks we scratch on the page don't mean what we want just because that's what we want them to mean—even if meaning is use, not every use is meaningful. We suggest avoiding the extremes, wanton scepticism on the one hand, naive credulity on the other, by showing how novel grammatical categories may be introduced whilst still being related or analogous to familiar categories we already understand.

We already have an understanding in English of the thematic roles (agent, patient, goal, instrument, etc.) associated with verbs and their markers, roles that are widely invoked in linguistics. As ordinary language users, we exploit these roles to describe the obtaining of relations expressed by verbs. So when we understand, for example, "David kicked Peter", we do so by distinguishing two roles: the kicker, or more generally, agent role, associated with the subject of the verb "kick", and the kicked or patient role associated with its object. Another of these roles, location, is typically expressed in English using prepositions, as in "Daphne ran in the park." Now this is a distinctive feature of English. Neither Sanskrit nor archaic Latin require the use of preposi-

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tions for this purpose but allow for an associated grammatical category, the locative case. The locative case has disappeared from most contemporary Indo-European languages. Nonetheless, we can readily imagine an historical scenario in which the locative case was still available in English and that this case might be exploited to augment the use we make of "bears", i.e., to add a location term so that we can say that a relation is borne by something to something else relative to a location, i.e., a three place relation. And if we can imagine English augmented in this way using an archaic grammatical case, it would seem unduly reactionary to refuse to envisage English enhanced with novel grammatical cases corresponding to the other thematic roles we associate with verbs.

Alternatively, to the same end, we might allow "bears" to be followed by any number of indirect objects of the type "*x* as *R*", where *R* is a thematic role, which we already understand because of their association with verbs: "the relation that *x* as agent bears to *y* as theme to *z* as goal", etc. Similarly, we can imagine utilizing English prepositions, such as "via", "through", "for", etc., to augment "bears" to handle triadic non-symmetry relations. For example, we might use descriptions of the following form: "the relation that *x* bears to *y* via *z*".

We conclude that even if we don't have names for $n > 2$-adic non-symmetric relations, we might have had them, and we can still invent them. It is more wayward scepticism than the conscientious exercise of theoretical caution to refuse to admit the possibility of extending the expressive resources of present-day English to enable us to name non-symmetric relations by so enriching the logico-grammatical multiplicity of the "bears" construction. Whilst natural languages, like English, weren't designed and didn't evolve for the purpose of enabling us to reflect explicitly upon the significance of relation words, our mastery of prepositions, the thematic roles associated with verbs, etc., provide us with the wherewithal to work our way up. We're not forced to choose between sticking with what's currently expressible in natural language or starting over again—having to decide whether, as natural language speakers, we have been truly wise in how we presently restrict ourselves or whether we have just been too timid to take flight.*

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