

Aspects in Leibniz's Reduction of Relations

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Plato, the Pythagorean

47 years ago, Hector-Neri Castañeda discovered an interesting theory of relations in Plato's *Phaedo*, 102b7-c4, which a year later and in English, he characterises it as follows:

The sentence 'Simmias is taller than Socrates' does not reveal the truth it expresses perspicuously, because this sentence mentions only one Form, tallness, whereas the truth or fact in question involves two Forms, tallness and shortness. This is in a nutshell my exegesis of the passage. [...] *Phaedo* 102C1-D1 iterates the previous points and adds a third one: Tallness and Shortness are structured (Πρὸς) by a law of joint instantiation: a simple relational fact involving taller-than is a two-pronged fact. (Castañeda 1972: 469, 470)

The multi-pronged fact ascribes to several particulars a 'chain of universals'. Because it ascribes it to them together and just once, Castañeda may feel "confident that Plato considered the fact that Simmias is taller than Socrates to be identical with the fact that Socrates is shorter than Simmias." (Castañeda 1972: 474).

If we reduce *a*'s having *R* to *b* to *a*'s having the property *having R to b* and *b*'s having the property *having R̃ to a*, we have reduced the relation to two *different* properties, which are bound together by a "law of joint exemplification" (Castañeda 1972: 470). What is the ontological ground of such a necessary connection between distinct (non-overlapping) entities (cf. Grossmann 1983: 161)?

Also, if Simmias is taller than Socrates and Theaetetus is taller than Simmias, Simmias instantiates both tallness and shortness: he is a contradictory item. This, I guess, is why he does not really exist and why we need ideas: TALLNESS, the idea, is only tall, and not also short – this is why it makes the things tall that instantiates it, and not also makes them short.

Simmias, however, is not tall *simpliciter* and short *simpliciter*. He is tall with respect to Socrates, and short with respect to Theaetetus. But how can Plato account for ways in which forms are instantiated? He cannot.

The Aristotelian *pros ti*

So-called relatives (*pros ti* items) are introduced in the *Categories* as things that seem quantities, but are not – the examples given are "many" / "few" and "large" / "small". They are relatives because "nothing is called large and small just in itself, but by reference to something else. For example, a mountain is called small yet a grain of millet large – because one is larger than other things of its kind while the other is smaller than other things of its kind" (*Cat.* 5b16-18). Aristotle explains the extrinsicness of these characteristics by their perspectival character: "the large and the small are looked at in relation to something else" (5b28-29).

The introduction by example is then followed by something like an official definition at the beginning of chapter 7:

We call *relatives* all such things as are said to be just what they are, *of* or *than* other things, or in some other way *in relation to* something else. For example, what is larger is called what it is *than* something else (it is called larger than something); and what is double is called what it is *of* something else (it is called double of something); similarly with all other such cases. The following, too, and their like, are among relatives: state, condition, perception, knowledge, position. For each of these is called what it is (and not something different) *of* something else. (*Cat.*, 6a36-b4, 2014: 41)

This is Aristotle's so-called 'Platonic' definition of relations, or rather of what it is for things to stand in a relation.¹

Relatives, however, are not just generically extrinsic, but have specific "correlatives" that "reciprocate":

For example, the slave is called slave of a master and the master is called master of a slave; the double double of a half, and the half half of a double; the larger larger than a smaller, and the smaller smaller than a larger; and so for the rest too. Sometimes, however, there will be a verbal difference, of ending. Thus knowledge is called knowledge of what is knowable, and what is knowable knowable by knowledge; perception perception of the perceptible, and the perceptible perceptible by perception. (6b26-35, 2014: 42)

Aristotle explains that the reciprocation is automatic, grammatical almost, though not always apparent from surface grammar:

Sometimes, indeed, [relatives] will not seem to reciprocate – if a mistake is made and that in relation to which something is spoken of is not given properly. For example, if a wing is given as *of a bird*, *bird of a wing* does not reciprocate; for it has not been given properly in the first place as wing of a bird. For it is not as being a bird that a wing is said to be of it, but as being a winged, since many things that are not birds have wings. Thus if it is given properly there is reciprocation; for example, a wing is wing of a winged and a winged is winged with a wing. (6b35-7a4, 2014: 42-43)

The explanation of why *bird* is not the correlative of *wing* – that not all wings are had by birds – spells out a universality requirement: if *F* is the correlative of *G*, then necessarily, if something is *F* then something is *G* and *F* is of the *G* while the *G* is of the *F*:

Again, if that in relation to which a thing is spoken of is properly given, then, when all the other things that are accidental are stripped off and that alone is left to which it was properly given as related, it will always be spoken of in relation to that. For example, if a slave is spoken of in relation to a master, then, when everything accidental to a master is stripped off – like being a biped, capable of knowledge, a man – and there is left only being a master, a slave will always be spoken of in relation to that. For a slave is called slave of a master. (7a31-38, 2014: 44)

The construction "accidental to a master" is very interesting, for it is implicitly qualified as "accidental to a master *as a master*": it is not accidental to the person who is a master, e.g. Socrates, to be biped, capable of knowledge, a man, but only to his being a master: while he could exist, we hope, without owning any slaves, he could not be a master: each correlative "carries the other to destruction" (7b20).

1. Duns Scotus translates as: "Ad aliquid dicuntur quaecumque hoc ipsum quod sunt, aliorum dicuntur, vel quomodolibet aliter ad aliud" (Sup. Praed. q 26, n. 2; 1, 497b), Beckmann (1967: 35) as "'In einer Beziehung stehend' heisst dasjenige, dessen Sein darin besteht, ein zu einem anderen gehörendes Sein genannt zu werden."

Leibniz's reduction of relations

Famously, Leibniz argued in his correspondence with Clarke that relations, if they existed, would be “in two subjects, with one leg in one, and the other in the other, which is contrary to the notion of accidents”²

In “De Lingua Rationali”, Leibniz says:

Lingua rationalis ita utiliter constituetur, ut cuilibet vocabulo aliarum linguarum respondens possit, si velimus constitui, v.g. *Titius est magis doctus Cajus*. Sensus est: quatenus Titius est doctus, et Cajus est doctus, eatenus Titius est superior et Cajus est inferior. Haec analysis optima quidem est, sed non exprimitur vis singulorum verborum. Quod ut assequamur, dicendum erit: Titius est doctus et qua talis superior, quatenus inferior qua doctus est Cajus. (Leibniz 1999: 643)

Here, we seem to have a reduction to higher order predication of relations of comparison, and perhaps internal relations more generally. What about external relations? In the “Analysis of Propositions”, written shortly afterwards, we find:

Accusativus sine praepositione, ut cum verbum activum asciscit accusativum patientis, ut Titius laudat Cajum, seu Titius laudat, quatenus Cajus est patiens. (Leibniz 1999: 652)

What about “quatenus”? Jauernig (2010: 202) interprets it as a relation:

The reality of relations of connection, by contrast, depends on God's will, because they obtain in select possible worlds as a result of God's (possible) free decrees. [footnote omitted] That is, ‘et eo ipso’ can be read as short for ‘and by that very fact, due to God's free decrees’. [footnote: “Similarly, ‘quatenus’ can be read as short for ‘insofar as, due to God's free decrees’.”] In understanding Leibniz's non-truth-functional connectives in this way, I am disagreeing with (among others) Burdick who claims that ‘et eo ipso’ brings the sentences ‘David is a father’ and ‘Solomon is a son’ “together mentally, i.e., without any additional ontological commitments” (“Leibniz's Problem,” 10). On my view, ‘et eo ipso’ brings the two sentences together via God's special decrees, which amounts to an additional ontological commitment. The latter assessment is supported by how Leibniz measures the perfection of worlds. The perfection of a world is determined by how much “being” or “essential reality” it contains, by how much variety there is, and by the simplicity of its order and laws.”] These decrees can be understood either as concerning certain (contingent) laws that govern the relations in question, such as, for instance, the decree of the laws of molecular genetics that govern family relations, or, more commonly, as concerning specific relations between particular things, such as, for instance, the decree that Caesar is spatially located on top of, or in the Rubicon at a certain time.

In “Grammaticae cogitationes”, we find:

Optime sic explicabitur ut Paris est amator Helenae, id est: Paris amat *et eo ipso* Helena amatur. Sunt ergo duae propositiones in unam compendiose collectae. Seu *Paris est amator, et eo ipso Helena est amata. Ensis est ensis Evandri*, id est *Ensis est supellex, quatenus Evander est dominus. Poeta est lectus quatenus ille vel ille est legens*. Nam nisi obliquos casus resolvat in plures propositiones

2. “...en deux sujets, qui auroit une jambe dans l'un, et l'autre dans l'autre, ce qui est contre la notion des accidens.” (Leibniz's fifth letter to Clarke, 1890: 401 (translations: 1956: 71 and 1989: 339)).

nunquam exibus quin cum Jungio novos ratiocinandi modos fingere cogaris. Vel sic: *Paris amat Helenam* id est [*Paris*] *putat quod Helena est sibi futura jucunda*. *Ensis Evandri*, id est *Ensis qui est subditus quatenus Evander est dominus*. Subditum vel subditus est quod patitur quatenus alius agit, et quatenus is est justus. (Leibniz 1999: 115)

We may, following Leibniz, describe the relational complex on this non-fundamental level of analysis by “Othello loves in so far as Desdemona is loved” or “Othello loves and eo ipso Desdemona is loved”. This analysis has three parts:

- (i) it ascribes to Othello the relational property of loving Desdemona and the non-relational property of loving (ie. loving someone, being a lover);
- (ii) it ascribes to Desdemona the relational property of being loved by Othello and the non-relational property of being loved (ie. being loved by someone, being someone beloved);
- (iii) it ascribes to the facts stated by (i) and (ii) the relation making true claims such as “*p* in so far as *q*” or “*p* and eo ipso *q*”.

This three-pronged analysis allows us to keep what is right in the alternative accounts:

- In this sense of (i) and (ii), we may say, with Fine, that the asymmetric relation *R* distinguishes between two parts of the sum that exemplifies it by coordinating them with different things, e.g. lovers and beloved ones. This allows us to say that Othello, Don José and Abelard, say, have something in common: they are lover parts of fusions exemplifying the neutral amatory relation.
- In this sense of (i) and (ii), we may say, with the positionalist, that this difference between Othello and Desdemona, as parts of the relational complex, is due to their playing different rôles, ie. entering into this complex in different ways – as lover and as beloved respectively.
- The “*p* in so far as *q*” and “*p* and eo ipso *q*” locutions express that “*p*” and “*q*” have the same fundamental truthmaker.³

But what *is* the EO IPSO? If we had universals and exemplification would be partial identity, we would have a nice theory:

“Abelard insofar as he loves Heloise is partially identical with Loving, in virtue of being partially identical with Loving-by. Heloise insofar as Abelard loves her is partially identical with Loving in virtue of being partially identical with Loving-of. In general the blanks filled by noun phrases in relation predicates, if they correspond to anything, will correspond to aspects of a relation. [...] Notice that, on this account there is a necessary connection between Abelard insofar as he loves Heloise and Heloise insofar as Abelard loves her. Neither aspect can exist without the other. This connection is due to the fact that necessarily, *Abelard* loves Heloise if and only if Abelard loves *Heloise*. (Baxter 2001: 457-8)

If Heloise also loves Maria, however, all *three* of them turn out identical!

3. Mates (1986: 216) is right about this, though wrong in taking truthmaking to be implication (or rather: entailment): “[Paris is a lover, and eo ipso Helen is a loved one]” tells us that those “facts” or individuals-cum-accidents that make “Paris is a lover” true also make “Helen is a loved one” true; presumably, if those facts were more narrowly described, the resulting propositions [...] would actually imply that Paris loves Helen.”

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