

Leibniz and ‘Bradley’s Regress’*

Massimo Mugnai, Scuola Normale Superiore, Pisa

Abstract

In a text written during his stay in Paris, Leibniz, to deny ontological reality to relations, employs an argument well known to the medieval thinkers and which later would be revived by Francis H. Bradley. If one assumes that relations are real and that a relation links any property to a subject – so runs the argument – then one falls prey to an infinite regress. Leibniz seems to be well aware of the consequences that this argument has for his own metaphysical views, where the relation of inherence (‘*in esse*’) plays such a central role. Thus, he attempts first to interpret the relation of inherence as something ‘metaphoric’, originating from our ‘spatial way’ of looking at the surrounding world; and then he tries to reduce it to the part-whole relation which clearly he considers weaker, from the ontological point of view, than that of ‘being in’.

1.

In a text dated ‘December 1676’ written during the period of his stay in Paris, Leibniz employs the following argument to refute any attribution of ontological reality to relations:

It is no wonder that the number of all numbers, or that all possibilities, or all relations or reflections, are not distinctly understood; for they are imaginary, and have nothing corresponding to them in reality. Suppose, for example, that there is a relation between *a* and *b*, and call it *c*; then, consider a new relation between *a* and *c*: call it *d*, and so forth to the infinite. It seems that we do not have to say that all these relations are a kind of true and real ideas. Perhaps they are only mere intelligible things, which may be produced, i.e. that are or will be produced.¹

This is a standard argument employed by nominalists aiming to show that relations are not real. In a slightly different version, for example, it is present in the first book of the *Commentary to the Sentences* of Gabriel Biel, an author with whom Leibniz was surely well acquainted:

[...] thus we will have an infinite process because, consider the diversity *a*: this surely will be distinguished by its foundation, *b*, either by itself or in virtue of another, call it *c*. If the first case, then we have what we want; if the second, one may ask about *c* appealing to a new *d*, and then we will have an

infinite regress [...]²

Biel uses here a bit of scholastic jargon which, for a better understanding of the text, needs some explanation. According to a theory of relations prevailing amongst thinkers who favored ontological realism, a (binary) relation subsisting between two individuals had always to be based on non-relational properties of the implied individuals. Such properties were usually called ‘foundations’ of the relation. Thus, for example, if Socrates and Plato are both white, the whiteness in Socrates and the whiteness in Plato were considered each a foundation of the relation of similarity.³ Even though Ockham considered “not philosophical” the expression *foundation of a relation*,⁴ later it became very popular, even amongst authors who were considered (more or less moderate) nominalists. This doctrine may be found, for example, in authors of the 17th Century like Pierre Du Moulin (1586-1658), who wrote a text on logic probably known to Leibniz:

Every relation belonging to this predicament is grounded on some absolute accidents by means of which it inheres in the substance: thus a thing is said to be small or big by quantity; a friend is a friend in virtue of a quality (for instance: benevolence); father and son are predicated in virtue of generation, left and right in virtue of place. We call absolute all those accidents which are not related and which can be known by themselves without the help of any accident: such an absolute accident is the foundation of the relation.⁵

In the passage quoted above, Biel argues starting from assumptions accepted by a realist: his aim is to show that these assumptions imply an infinite regress. Biel’s argument may be reconstructed as follows. Suppose that a given individual, call it *a*, is different from another individual *b* in respect to the property *P* (suppose, for instance, that *a* is white, whereas *b* is black). Then, the relation of *being different* from *b*, call it *R*, is truly attributed to *a* in virtue of *P* (the foundation of the relation of *difference*). But, if relations have some ontological reality, i.e. if they are *really distinct* from their foundations, then the relation *being different* from *b*, that is *R*, must be different from *P* either. Thus, let call *R’* the difference that exists between *P* and *R*: if *R’* has to be really distinct from *P*, then this must happen only in virtue of another difference, so giving rise to a process to infinity.

Before Biel, an analogous form of the argument (without mentioning the ‘foundation’ of a relation, however) was employed by John Buridan:

If *a* and *b* are simple forms which differ essentially because of a difference which has been superposed on them, then call this difference *c*: it is necessary that *c* and *a* either differ essentially or differ in virtue of another difference

which has been really added. But then I will proceed to infinity [...].⁶

The arguments of Leibniz, Biel and Buridan just considered belong to the same family of what, in the tradition of analytic philosophy, is known as 'Bradley's regress'. In *Appearance and Reality*, indeed, the British philosopher Francis Herbert Bradley argues as follows:

Let us abstain from making the relation an attribute of the related, and let us make it more or less independent. 'There is a relation C, in which A and B stand; and it appears with both of them.' But here again we have made no progress. The relation C has been admitted different from A and B, and no longer is predicated of them [...] If so, it would appear to be another relation, D, in which C, on the one side, and, on the other side, A and B, stand. But such a makeshift leads at once to the infinite process.⁷

With this argument Bradley aimed to show that, if relations are understood as some kind of *real links* connecting either properties with a given individual (for instance Socrates) or properties with other properties, then an infinite regress originates. As we have seen, Leibniz uses a similar argument to prove that relations cannot be some kind of 'real' properties, inhering in the things they relate. A point that has to be stressed is that the argument applies not only to relations 'out of the subjects' in Leibniz's sense, but even to what, in the literature on Leibniz's theory of relations are known as 'relational accidents' as well. This is clearly shown by the passage quoted from Biel's *Commentary on the Sentences*, where the focus is put exactly on the link which may connect a relational accident with the property playing the role of its *foundation*. To better explain this point, let me dwell once more on the traditional, scholastic and late-scholastic theory of relations.

As Leibniz points out in his fifth letter to Clarke, we may consider the "ratio or proportion between two lines L and M" in three different ways: "as a ratio of the greater L to the lesser M, as a ratio of the lesser M to the greater L, and, lastly, as something abstracted from both, that is, the ratio between L and M without considering which is the antecedent or which the consequent, which the subject and which the object."⁸ Usually, amongst medieval thinkers and even authors belonging to the period during which Leibniz is writing, there was a general agreement concerning the merely mental nature of relations considered in the third way. This was due essentially to the acceptance of the principle according to which "the same accident cannot belong to two different subjects."⁹ Thus, the disputes concerning the reality of the relations were almost centered on what we may call 'relational predicates' or 'relational accidents'. In the case of the two lines L and

M mentioned by Leibniz, for instance, the dispute would typically concentrate on the relationship that the properties corresponding to ‘greater’ and ‘lesser’ have with their foundations in their respective subjects L and M. In other words, to decide the question of the ontological status of the ‘relational predicates’, one had to answer the question if these relational predicates are distinguishable or not from their foundations. Typically, the answer of a realist would be that the relational predicate *is really distinguishable* from its foundation, whereas that of a nominalist would be that the relational predicate is identical with its foundation. Obviously, intermediate positions were allowed: a ‘conceptualist’, for instance, would say that the relational predicate is distinguishable only by means of a *conceptual distinction* from its foundation.

2.

Thus, if a given relational accident has a reality *independent* of the reality of its foundation, it has to be linked to this latter by means of some kind of substantial link. But then it is precisely at this point that Bradleys’s argument applies. Moreover, even the foundation and, in general, any non-relational, absolute property, like, for instance, ‘white’ or ‘philosopher’ maintains, according to Leibniz, a link of ‘inherence’ with the individual substance which is white or a philosopher. In this case too, Bradley’s argument has its force. Therefore, it is no wonder if Leibniz, on several occasions, attempts to find a ‘deflationary way’ of interpreting the meaning of the Latin expression *in esse (to be in)*, which he usually employs to characterize the relationship of a property (or an ‘accident’) to its bearer.

In a text written around 1690, Leibniz states that he has spent a lot of time investigating the “general notion of inhering”:

For much time I inquired carefully into the general notion of *inhering*: certainly, we say that some things are in something else, if the former are moving when the latter is moved. Thus, if a body, say a basket, is moved, then all the things which are included in it are moving together with all its parts and its boundaries and, finally, with any other things which are annexed to them, i.e. their properties and accidents.¹⁰

Clearly, Leibniz here attempts to reduce the relation of *inherence*, which plays a crucial role in his metaphysics, to something derived from our spatial experience. Indeed, we say that a given property is *in a subject*, because we experience that, as the subject changes in place, then suddenly the property in question moves

with it. This is perfectly coherent with what Leibniz says about the meaning of *prepositions* in the natural language: prepositions like *to, with, of, in, out,* etc. "are all derived from place, distance and motion and subsequently transferred to all kinds of changes, orders, sequences, differences, and conformities."¹¹ As he writes in an essay concerning the analysis of the particles in Latin:

It has to be remarked that all these prepositions of Latin, in their proper meaning denote some relation of space [*respectum localem*] and that are employed, indeed, to signify any other kind of relations.¹²

The experience of space seems to be for Leibniz something primitive on which the meaning of some elementary relations is built and then extended by mere analogy to other non-spatial domains. In particular, this is what Leibniz says, in the *New Essays*, about the Latin word *in*:

And just as what is shut up somewhere or is *in* some whole, is supported by it and goes where it goes, so accidents are thought of similarly as *in* the subject - *sunt in subjecto, inhaerent subjecto*.¹³

Amongst few other texts where Leibniz discusses at some length the meaning of the Latin word *in*, the following (not yet published) is quite remarkable:

To be *in A* is the same as to be constitutive of a predicate of *A*. Thus the abstract is in the concrete, i.e. what is attributed is in the subject. The part is in the whole. The point is in the line, the line is in the surface, the surface in the body. What is located is in a place. Action is in time, position in an order. But what constitutes is something prior by nature and gives rise to something else without any intervening implication or immediate inference. Thus the ingredients give rise to an aggregate as, for example, a body or a state, a place taken together with the things which are located or existing in it, a time together with the things which exist in it [...]

It may be objected to my definition of 'in' that every correlative constitutes a predicate of another correlative, as father constitutes the predicate according to which another person is his son. Should we then add that 'in' is a predicate constitutive in virtue of its existence? For even if the father were to cease to exist, it still continues to be true that that person is his son. But even this does not solve the problem. For two things near one another constitute the relation of nearness simply by existing, without the one being in the other. It is true that this is reciprocal, but also the whole in its turn constitutes the predicate of being a part, but it is not prior by nature.

Perhaps, then, we should put it thus: that what is 'in' something is what

exists in virtue of the existence of that very something, or that the existence of which coincides with the existence of that thing itself. Thus an accident is not in any other place or time different from where the subject is, nor is a part in anything other than the whole, nor is a thing placed in anything other than a place, nor an ordered thing in any order other than a complex of ordered things.¹⁴

Leibniz here begins asking himself about the meaning of the Latin particle *in* and reaches the conclusion that this particle expresses the fact that something is part of something else or, better, *constitutes* it. Thus *B* is in *a*: 1) if *B* is prior by nature in respect to *a*; 2) if the existence of *B* gives rise *immediately* (i.e. without recourse to any kind of inference) to the existence of *a*. What Leibniz calls ‘constitutive’ in this text, he calls ‘requisite’ (*requisitum*) elsewhere: “A *requisite* is a condition prior by nature;”¹⁵ “A *requisite* is a simpler condition, i.e. what usually is said to be prior by nature.”¹⁶ As he writes in a table of logical and metaphysical definitions:

Of the requisites of things, some are mediate, i.e. those that have to be investigated by means of the sole reason, as, for instance, the causes; some, instead, are immediate, as parts, borders and, in general, all things that are *in*.¹⁷

More explicitly, in a short remark written after 1690, Leibniz links together *requisite*, *constituent* and the notions of *part* and *whole*:

If as soon as a plurality of things, say *A*, *B*, *C* is called to existence, suddenly some other thing, say *L*, exists without that any inference of sort had taken place, then the former are said *constituents*, the latter the *constituted*; the former are said to be the contents and the latter the container, i.e. the former *exist in* this latter. And this is precisely what we have said to be the immediate requisite for *L*. Hence, if the constituents are things each different the one from the other, as *A*, *B*, etc. then these are said to be the parts and *L* the whole.¹⁸

Leibniz develops more systematically these ideas in a series of calculi based on the part-whole relation and on what he calls ‘non-arithmetical sum’ (an operation which is commutative, idempotent and associative¹⁹) equivalent to what now is known as ‘mereological sum’. This operation is very general and holds even between parts located in different places and times:

If as soon as a plurality of things is called to existence, then we understand that one only thing exists, those are said to be the parts, this the whole. There is no need that the parts exist in the same time or in the same place: it is sufficient that they all *are considered* in the same time. Thus, from all the Roman emperors

taken together, we construct one aggregate only.²⁰

Moreover, it may be applied even to things of different kinds:

[...] our general construction depends upon the second postulate, in which is contained the proposition that anything can be compounded with anything in such a way that God, soul, body, point and heat compose an aggregate of these five things.²¹

Coming back now to the main text that we are considering, we see that Leibniz, after having assimilated the meaning of the particle *in* to that of the relation *part-whole*, expresses some dissatisfaction with the definition of *in* he has given at the beginning. Because a relational predicate as, for instance, *father*, implies the existence of the *correlative* predicate of *being a son*, then it seems that the property of being father *in David* should constitute, by its mere existence, the existence of the property of being son *in Solomon*. At this point, however, Leibniz's reflections become quite difficult to follow: he seems to think of a counterexample, where the existence of two distinct things gives rise to a relation, without constituting any predicate *inhering in* the one or the other. At any rate, the very fact that Leibniz here speaks of a relational predicate as determining the existence of a correlative predicate cannot be considered a proof that he accepts as *real* the relational predicates: this was a quite standard view of all the philosophers belonging to the scholastic tradition. What matters here is not the 'constitution' of a correlative term, but what properly corresponds to each relational predicate, in the world *extra*. As Ockham writes, for example:

The same I state concerning paternity and sonship, i.e. that paternity in creatures implies nothing more than this man who procreated and that man who was generated, because, leaving out of consideration any other thing, if these exist, then this is truly the father and that the son.²²

In the last part of the text, however, Leibniz seems to regain the main thread of his analysis of the Latin word *in*, and observes that in order to avoid problems, the best policy is that of considering "what is 'in' something" as what "is posited when that very something is posited." This seems to offer a 'more neutral account' of the relationship between an accident and its substance than that implied by the relation of *being in*: "Thus an accident is not in any other place or time different from where the subject is, nor is a part in anything other than the whole."²³

Leibniz, instead of attempting to explain in terms of a relation between an individual substance and a quality the link which connects a given subject to an accidental property, interprets the link in terms of 'constitution'. An accidental

property as, for instance, being white, is not something added or connected in some mysterious way to a substance, for instance Socrates; it is something which *constitutes* the subject Socrates and which maintains with it a link of part-whole:

And therefore it seems that *to be in* a subject is that whose reality is part of the reality of this very subject. Or, to speak in a way more suited to the aim of forming and proving sentences, *A is in B* if everything which immediately is required to have *A*, is required to have *B* too. Indeed, what is the immediate requisite for something else, in such a way that nothing more is required to have it, either immediately or mediately, may be called *reality*.²⁴

Committing himself to the thesis that the accidental properties are constitutive parts of the substance to which they belong, Leibniz, however, opens the door to the possibility that with the change of these properties some part or parts of the substance undergo a change. He tackles directly the question if the changing properties cause any real change in the underlying substance in a short text entitled *On the Reality of Accidents* (1688). Here, after having confessed himself to be a nominalist, even though as a precautionary measure, Leibniz states that, to avoid embarrassing ontological questions, the best things to do are:

- to consider abstract terms not as corresponding to something real, but simply as a kind of “abridged way of speaking” (*compendia loquendi*);
- to stop asking if there are truly different ‘real things’ in the substance, which are the *foundations* of different changing properties.

In the end Leibniz refuses the metaphysical model of an individual substance whose accidental properties are something *extrinsic*, connected to it by means of some mysterious relation; and he attempts to develop a metaphysical perspective according to which the properties of the individual substances are conceived as *constitutive* parts of these latter. Thus, a basic tool of Leibniz’s mature metaphysics becomes the *whole-part* relation, which he conceives as a kind of all-purpose tool, very fit to describe the ‘structure of the world’. In the *New Essays*, however, he explicitly distinguishes the *part-whole relation* from that *de continente et contento*: whereas the first seems to be more apt to give a description of reality, the second may be employed to demonstrate the theory of the syllogism:

So it can truthfully be said that the whole theory of syllogism could be demonstrated from the theory *de continente et contento*, of container and contained. The latter is different from that of whole and part, for the whole is always greater than the part, but the container and the contained are sometimes equal, as happens with reciprocal propositions.²⁵

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Therefore, making recourse to the two relations, respectively, of part-whole and container-contained, one may develop an analysis of the external world and offer a secure basis for the world of logic.²⁶

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Massimo Mugnai
Scuola Normale Superiore
Piazza dei Cavalieri 7
56126 - Pisa, Italy
m.mugnai@sns.it

Notes

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¹A VI, 3, p. 399: "Mirum non est numerum omnium numerorum, omnes possibilitates, omnes relationes seu reflexiones non distincte intelligi, sunt enim imaginariae nec quicquam respondens habent a parte rei. Ut si relatio sit inter *a* et *b*, eaque relatio vocetur *c*, et consideretur relatio nova inter *a* et *c*, eaque vocetur *d*. Et ita porro in infinitum, non videtur dicendum omnes istas relationes esse veras quasdam realesque ideas. Forte ea tantum mera intelligibilia sunt, quae produci possunt, id est quae producta sunt aut producentur." Partially translated in Ar, p. 390 n. 3.

² Gabriel Biel, *Super Primum Sententiarum*, I, Dist. XVII, q. I, art 2B: "[...] esset processus in infinitum, quia sit diversitas *a*: illa etiam distinguitur *a* fundamento *b* vel seipsa vel alia que vocetur *c*. [...] si secundum queritur de *c* sicut de *d* et erit processus in infinitum [...]." Gabriel Biel (1420-1495), a representative of the late-scholastic philosophy at the time when Humanism was flourishing, was professor of theology at the University of Tuebingen and, from the ontological point of view, favored a kind of 'mild' nominalism.

³As some authors emphasize, the two whitenesses are different individual properties of the same species, not exactly the *same* (*identical*) property inhering in two different individuals.

⁴ Cf. Ockham, *Summa logicae*, pp. 177-78 (in *Opera Philosophica*, 1, New York: Franciscan Institute, St. Bonaventure, 1974).

⁵ Petrus Molineus, *Elementa Logica*, Paris, 1618, pp. 28-29: “Omnis relatio huius praedicamenti innititur alicui accidenti absoluto, quo mediante inest substantiae: ut parvum et magnum dicitur ob quantitatem, amicus et amicus ob qualitatem, pater et filius ob generationem, dextrum et sinistrum ob situm. Accidentia autem absoluta appellamus omnia quae non sunt relata, et quae possunt cognosci sola, et sine alio accidente: accidens tale absolutum est fundamentum relationis.” Du Moulin’s book belongs to the Ernst-August Bibliothek in Wolfenbuettel, of which Leibniz was appointed librarian by the local Duke. Cfr. Antognazza, *Leibniz. An Intellectual Biography*, Cambridge: Cambridge University Press, 2009, pp. 320 ff.

⁶ Cf. Dirk-Jan Dekker, “John Buridan’s Treatise, *De dependentiis, diversitatibus, et convenientiis*,” *Vivarium* 42.1, p. 116: “Si *a* et *b* sunt formae simplices diversae essentialiter per diversitatem realiter superadditam - illa diversitas vocetur *c* -, tunc oportet quod *c* et *a* sint diversa essentialiter vel per aliam diversitatem realiter additam, et tunc procedam in infinitum [...]”

⁷ Francis H. Bradley, *Appearance and Reality*, London: Swan Sonnenschein, 1893, pp. 16-18.

⁸ L, p. 704; GP 7, p. 401; *Correspondance*, pp. 144-45.

⁹ Thomas, *In quatuor libros Sententiarum*, II, d. 42, q.1, ar.1: “unum accidens non potest in diversis subiectis esse.”

¹⁰ A VI, 4A, pp. 989-90: “Diu autem multumque investigavi generalem notionem τοῦ *inesse*, et quidem ea dicimus in alio esse, quae cum ipso moto moventur. Ita moto corpore, verbi gratia cista, moventur quae ei sunt inclusa, et praeterea ejus partes et termini, ac postremo ejus adjuncta, nempe proprietates vel accidentia [...]”

¹¹ A VI, 6, p. 277 (Remnant and Bennett).

¹² A VI, 4A, p. 647

¹³ A VI, 6, pp. 277-78 (Remnant and Bennett).

¹⁴ LH IV, 7B, 3, Bl. 56v: “In A est ut constitutivum praedicati ipsius A. Ita abstractum est in concreto seu adjunctum in subjecto. Pars in toto. Punctum est in linea, linea in superficie, superficies in corpore. Locatum est in loco. Actio in tempore; positum in ordine. Constitutivum autem est quod aliquid sine interveniente consequentia ponit, seu immediate inferens natura prius. Ita ingredientia ponunt aggregatum ut corpus, statum, locum simul cum locatis seu inexistentibus sumtum, tempus simul cum existentibus[...]

Objici potest ad meam definitionem τοῦ in quod omne correlatum constituit aliquod praedicatum alterius correlati, ut pater constituit praedicatum hoc quod alter est ejus filius. An ergo adjiciemus ut in sit praedicatum sua existentia constitutivum. Nam etsi pater non existat amplius verum manet eum esse filium. Sed nec hoc rem efficit. Nam duo vicinia existentia sua relationem viciniae constituunt, nec tamen unum est in alio. Verum est hoc reciprocum esse, sed et totum vicissim constituit praedicatum partis, at non prius natura est.

An dicemus? In aliquo est quod ipsius positione ponitur. Seu cujus positio est ipsius positio. Sic accidens non in alio loco aut tempore est quam subjectum, nec pars in alio quam totum, nec locatum in alio quam locus, nec ordinatum in alio ordine quam complexus ordinatorum.”

¹⁵ A VI, 4A, p. 305.

¹⁶ A VI, 4A, p. 627.

¹⁷ A VI, 4A, p. 627.

¹⁸ A VI, 4A, p. 1002: “Si pluribus positus, A, B, C, eo ipso positum sit unum, aliquod L sine ulla illatione, dicuntur illa constituenta, hoc constitutum; illa contenta, hoc continens, seu illa inexistencia isti. Et hoc est quod diximus A esse requisitum immediatum ipsius L. Quod si constituenta sint res inter se diversae A, B, etc. dicuntur *partes* et *L totum*. Apud Geometras tamen praeterea requiritur, ut inexistens sit homogeneum continenti, ut ejus pars dicatur.”

¹⁹ Leibniz recognizes explicitly the first two properties, whereas he limits himself to use the third.

²⁰ A VI, 4A, p. 627: “Si pluribus positus, eo ipso unum aliquod poni immediate intelligatur, illa dicuntur *partes*, hoc *totum*. Nec vero necesse est eodem tempore existere aut eodem loco, sufficit ut eodem tempore considerentur. Ita ex omnibus imperatoribus Romanis simul Unum aggregatum conficimus.”

²¹ A VI, 4A, p. 842: “Respondeo constructionem nostram generalem inniti postulato 2.do, quo continetur quidvis cuiusvis componi posse, ita *Deus, anima, corpus, punctum, calor* componunt aggregatum harum quinque rerum.”

²² Ockham, *Ordinatio*, in *Opera Theologica*, New York: Franciscan Institute, St. Bonaventure, IV, p. 367: “Idem dico de paternitate et filiatione, quod paternitas in creaturis non importat plus nisi istum hominem qui genuit et istum hominem qui genitus est, quia istis positus et omni alio circumscripto, vere iste est pater et ille est filius.”

²³ Cfr. n. 14 above.

²⁴ A VI, 4A, p. 990: “Et proinde videtur illud *inesse* in subjecto, cujus realitas est

pars realitatis ipsius subjecti. Seu ut loquar more magis apto ad propositiones formandas, demonstrandasque, *A est in B*, si omnis res quae ad *A* immediate requiritur, etiam immediate requiritur ad *B*. Id autem quod immediate requiritur ad aliquid, ita ut ad ipsum nihil amplius requiratur immediate, adeoque nec mediate, dici poterit *realitas*.”

²⁵ A VI, 6, p. 486.

²⁶ For some suggestions concerning Leibniz’s mereology of body, cf. Glenn A. Hartz, *Leibniz’s Final System. Monads, Matter and Animals*, London-New York: Routledge 2007, pp. 68 ff.