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Tradition and innovation in ontology: the case of propositions and states of affairs[1]

I shall explain the notions of propositions and states of affairs as they are understood in the current ontological debate and I shall briefly relate them to similar notions in Aristotle and some Medieval authors. In contrast with the point of view of some philosophers (e.g., the early Russell, Castañeda and Gaskin) who identify propositions and states of affairs, I shall argue that they need to be sharply distinguished. I shall then move on to a problem for propositions and, above all, states of affairs, known as Bradley's regress*, and hint at discussions of this or analogous puzzles in the philosophical tradition before Bradley. Finally, I shall present my own approach to this issue, Fact Infinitism, focusing on why it would have been hardly acceptable before ontology came to have the Cantorian conception of the infinite at its disposal.*

1. Introduction

Propositions and states of affairs have gained wide currency as quite distinct items in current analytic philosophy, more specifically in its ontological subfield. A look at the tradition behind them in the early stages of the analytic movement and further back in medieval times shows however that they tended to be confused. It is an important innovation that they are nowadays clearly distinguished, for we can hardly avoid to have both of them in our ontological inventory; or so I shall argue, in contrast with philosophers such as Russell and Castañeda, who have felt that we can do without states of affairs.

States of affairs, however, seem to fall prey in a particular virulent way to a difficulty known as *Bradley's* (*infinite*) *regress*. This is an argument attributed to Bradley, but there are similar arguments in Leibniz and in some scholastic philosophers. Part of the weight assigned to such arguments in the past may have to do with the refusal to accept an actual infinity. But nowadays, after Cantor and Dedekind, this refusal is no longer justified and this is another important innovation for ontology. Fortified by the view of the infinite stemming from these founding fathers of modern set

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theory, we can perhaps look at Bradley's regress with different eyes and even turn it into a positive account of the nature of states of affairs.

2. Propositions

If we go back to the roots of contemporary analytic philosophy, we see the early stages of a theoretical thread involving kin notions such as Bolzano's propositions in themselves, Frege's thoughts, Meinong's objectives and the propositions of Moore and the early Russell[2]. Nowadays, after many years of inquiries and developments leaning on those original formulations, we normally recognize a category of propositions, thus characterized.

First, propositions are interlinguistic meanings of declarative sentences. For example, the English sentence

(1) the dog is chasing the cat

and the Italian sentence

(2) il cane sta rincorrendo il gatto

mean the same proposition. Second, they are the main bearers of truth and falsehood: the proposition expressed by (1) and (2) is true or false, depending on whether or not the dog is chasing the cat (accordingly, the sentences (1) and (2) are also true or false, as the case may be). Third, they are possible accusatives of propositional attitudes such as believing, judging, doubting, etc. For instance, if Mary believes that the dog is chasing the cat, she is in a relation, believing, with the proposition expressed by (1) and (2). Fourth, propositions are typically conceived of as mind-independent and yet graspable by different minds. That is, propositions exist independently of whether or not there are thinking subjects that use sentences expressing them or are related to them by propositional attitudes. However, different subjects can grasp the very same proposition, say *P*, e.g. by using two sentences that both mean *P* or in being related to *P* by propositional attitudes, e.g., one subject believes *P* and the other doubts about *P*.

Fourth, propositions are usually viewed as complex entities. That is, they are made of constituents pretty much as a sentence results from the composition of its syntactic parts. For example, just as sentence (1) results from compounding a grammatical subject, a verb and a direct object, the corresponding proposition involves as constituents the meaning of the two singular terms "the dog" and "the cat" and the meaning expressed by the verb. Whether the meanings of the two singular terms are objects in flesh and blood, in this case a dog and a cat, or rather

2 See in particular B. Russell, *The Principles of Mathematics*, Cambridge University Press, Cambridge 1903. An enticing historical reconstruction can be found in A. J. Coffa, *The Semantic Tradition from Kant to Carnap: To the* Vienna Station (L. Wessels, ed.), Cambridge University Press, Cambridge 1991.

individual concepts, descriptive contents or the like is a complicated issue that we sidestep here[3].

Let us focus on an aspect of propositions that is paramount to emphasize for our present purposes: they are, we may say, *supervenient on their constituents*. By this I mean that, given some items that can enter as constituents in a proposition, we cannot fail to have a proposition with those very items as constituents. This guarantees (i) the possibility of erroneous beliefs and (ii) that there are meanings for all sentences, even false ones. Thus, for example, on the assumption that dogs and cats in flesh and blood and the relation of chasing can be constituents of propositions, and that there is a certain dog Fido and a certain cat Felix, then there must be the proposition that Fido is chasing Felix, which, let us assume, is expressed by (1), given the appropriate context. This proposition may well be false, and such will be if Fido is not chasing Felix, but nevertheless it exists if (1) is to have a meaning. And Mary may erroneously believe it, e.g., after inferring that the noises and turmoil in the other room are due to Fido's chasing Felix, while in fact they have another cause.

3. States of affairs

In the early days of analytic philosophy, we find discussions not only of propositions, but also of states of affairs (or facts), also understood as complex entities, involving constituents. For example, in Wittgenstein's *Tractatus* we are told that the world is made up of states of affairs understood as objects standing in relations and Bergmann[4] makes large use of states of affairs not only of the relational kind but also of the monadic kind, as we may call them, i.e., simply involving the exemplification of a property by an object. It is not clear that these authors sharply distinguished between propositions and states of affairs (for reasons that I will explain in a moment), but talk of states of affairs has since then consolidated over the years leading to how D. M. Armstrong paradigmatically understand them in his *A World of States of Affairs* (Cambridge University Press, Cambridge 1997). Following Armstrong, states of affairs are truthmakers of true propositions, i.e., they are those wordly entities that, by their very existence, make true propositions true. For example, there exists a state of affairs constituted by the relation of chasing, Fido and Felix if, and only if, this relation is actually (jointly) exemplified (in the appropriate order) by Fido and Felix. And, given that there is such a state of affairs, the proposition expressed by (1) is true (on the assumption that the context makes it clear that the singular terms of (1) refer to Fido and Felix). The point is that the state of affairs in question is what makes this proposition true. If

3 Cf. F. Orilia, *Singular Reference. A Descriptivist Perspective*, Springer, Dordrecht 2010.

4 See, e.g., G. Bergmann, *Meaning and Existence*, University of Wisconsin Press, Madison 1959.

it didn't exist, nothing could make the proposition true and thus it would be false. In particular, the mere existence of Fido, Felix and the relation of chasing is not sufficient to make the proposition true. For example, if Fido and Felix are quietly resting, while Tom is chasing Jerry, it can hardly be denied that Fido, Felix and chasing exist; yet, these three entities are not, so to speak, combined in such a way as to generate a state of affairs that would make the proposition true.

As this discussion suggests, it is crucial to understand states of affairs as entities that do *not* supervene on their constituents: the existence of Fido, Felix and the relation of chasing does not guarantee that there exists the state of affairs of Fido's chasing Felix. When Fido does not chase Felix, this state of affairs does not exist and consequently the proposition expressed by (1) is false. This distinguishes propositions and states of affairs in a very clear-cut way.

When I said above that Wittgenstein and Bergmann may have not sharply distinguished between propositions and states of affairs, I had in mind the fact that, since they were willing to admit merely possible states of affairs, they presumably viewed states of affairs as supervenient on their constituents. For example, even though chasing is not *actually* exemplified by Fido and Felix, it might so be and thus the existence of chasing, Fido and Felix is sufficient to grant that there *is* the state of affairs of Fido's chasing Felix, even though as merely possible[5]. Here we shall rule out, however, in line with Armstrong, that there are merely possible states of affairs and accordingly assume that states of affairs, contrary to propositions, do not supervene on their constituents.

4. Propositions and states of affairs before analytic philosophy

We have concentrated on how the current notions of propositions and states of affairs have emerged from the early days of analytic philosophy, but already in Ancient and medieval philosophy we seem to find complex entities analogous to propositions and states of affairs, together with the danger of confusing them. Consider for example the scholarly assessment by Gaskin[6] of Adam Wodeham's (ca.1295-1358) and Gregory of Rimini's (ca. 1300 - 1358) discussion of these topics in relation to Aristotle.

According to Gaskin, the two Medieval authors in question accept something like our complex propositions (*complexe significabilia*) and seek support for their doctrine in Aristotle's talk of *pragmata* in the *Categories*. The crucial passages in Aristotle's *Categories* are at 12 b 5-16 and at 14 b 18-22. Now, at best, argues

5 I am assuming here that no real distinction between existence on the one hand and being, subsistence, Meinongian *Aussersein* or the like is ultimately tenable. I understand this is controversial, but I cannot tackle this important issue here. See however F. Orilia, *Ulisse, il quadrato rotondo e l'attuale re di Francia*, ETS, Pisa 2002.

6 R. Gaskin, "Complexe significabilia and Aristotle's Categories", in *La tradition médiévale des catégories (XII^e-XV^e siècles)*, ed. by J. Biard and I. Rosier-Catach, Peters, Louvain 2003.

Gaskin, Aristotle is talking there of states of affairs understood as truthmakers. And even that is not clear, for Aristotle is possibly taking as truthmakers simply things and not states of affairs having things as constituents. For our illustrative purposes, it will suffice to consider the latter passage, as reported by Gaskin (p. 189):

> the true sentence (*logos*) is in no sense the explanation of the being of the thing (*aitios tou einai to pragma*); on the other hand the thing does not seem in some sense to be the explanation of the sentence's being true (*to ... pragma phainetai pôs aition tou einai alêthê ton logon*). For it is in virtue of the being of the thing, or not, that the sentence is said to be true or false (*tôi gar einai to pragma ê mê alêthês ho logos ê pseudês legetai*).

And here is how Gaskin comments on it (p. 190):

> In [this] passage the *pragmata* in question serve to explain the truth of true sentences: there is no suggestion that, corresponding to false sentences, there are *pragmata* ... In particular there is no difficulty with a reading of the word "*pragma*" according to which it means "state of affairs": this sense is well attested in Aristotle's writings.

Gaskin however goes on to say (p. 191) that Aristotle's *pragmata* are *at best* states of affairs, because Aristotle's wording

> is compatible with a different reading, the one favoured by Marsilius of Inghen and Paul of Venice, according to which the *pragma* which renders a true sentence true is not a state of affairs but an object like Socrates.

Gaskin also offers explanation (p. 199) of why there can be a confusion of propositions with states of affairs, such as the one in which the two Medieval authors seem to have incurred:

> One obvious and immediate explanation is that the discussion of the semantics of sentences is conducted under the general rubric of the object of science, so that it is natural to expect a focus on the wordly correlates of *true* sentences, which are perhaps rather readily confusable with states of affairs, as the wordly correlates of false sentences certainly are not.

In other words, if we concentrate on true sentences and neglect the false ones, we can easily come to think that they just stand for states of affairs in the concrete world, without seeing the need for their expressing (possibly false) propositions in the abstract realm of ideas.

5. Propositions without states of affairs?

It is certainly wrong to confuse propositions and states of affairs as in these traditional sources scrutinized by Gaskin, but may we not deny that we really need

the distinction? Couldn't we perhaps claim that all we need are propositions and that it is unnecessary to ackowledge states of affairs *in addition* to propositions?

In Russell's *Principles of Mathematics* (cit.) there is in fact no distinction between propositions and states of affairs. There are just propositions. It is indeed recognized that some propositions are true and other false, but it is not affirmed that this is because the former are made true by states of affairs, whereas the latter are not. It is rather claimed that the true propositions have an indefinable quality that makes them different from false ones. Here is how Russell puts it (§38, p. 35)[7]:

> It is plain that true and false propositions alike are entities of a kind, but that true propositions have a quality not belonging to false ones, a quality which, in a non-psychological sense, may be called being *asserted*.

After Russell, other philosophers have followed this line, for instance Castañeda and more recently Gaskin himself.[8]

6. An argument for states of affairs

I think however that this view is wrong and that we had better acknowledge both propositions and states of affairs in our ontological inventory. To see why, let us focus again on the aspect that crucially distinguishes propositions from states of affairs, namely that propositions, contrary to states of affairs, supervene on their constituents. Let us for convenience represent propositions by using straight lines and states of affairs by using asterisks, so that, e.g., |Obama is black| is the proposition that Obama is black, and *Obama is black* is the state of affairs that makes this proposition true. Suppose we only have propositions and that, as Russell proposes, the true ones are distinguished from false ones by a special quality (being asserted or what have you). Call this quality *Q*. Consider now the two propositions |Obama is black| and |Obama is white|. Since the former is true and the latter is false, only the former, following Russell, has the quality Q. But then there is, it would seem, something like a state of affairs, which is the exemplification of quality Q by the proposition |Obama is black|. This has the crucial feature of not supervening on its constituents. Note in fact that, following Russell, we cannot say that |Obama is white| also exemplifies the quality Q. That is, even granted that there are the items |Obama is white| and the quality Q, it does not follow that there is the exemplification of Q by |Obama is white|. Thus, it seems appropriate to say that we have the state of affairs *|Obama is black| has quality Q* and we do not have the state of affairs *|Obama is white| has quality Q*.

These strange states of affairs having a proposition and the quality Q as their constituents must not be confused with propositions having a proposition and the

7 See also how Russell continues the discussion of this topic in § 52.

8 Cf. H.-N. Castañeda, *Thinking and Doing*, Reidel, Dordrecht 1975 and R. Gaskin, *The Unity of the Proposition*, Oxford University Press, Oxford 2008.

property of being true as constituents. Since both "it is true that Obama is white" and "it is true that Obama is black" are meaningful, we may assume that there are propositions corresponding to both of them, i.e., respectively, the propositions ||Obama is white| is true| and ||Obama is black| is true|. But there isn't, as we have seen, the state of affairs *|Obama is white| has quality Q*.

Russell's position thus leads, in addition to propositions, to at least a certain kind of states of affairs, namely, these strange states of affairs having propositions and the quality Q as constituents. But, then, since we have to acknowledge states of affairs, qua entities that do not supervene on their constituents, we might as well acknowledge the more ordinary states of affairs of the kind *Obama is black* or *the dog is chasing the cat* and renounce states of affairs such as *|Obama is white| has quality Q*. Once we have the ordinary states of affairs, the truth of true propositions is already granted by them, and it is not necessary to invoke the mysterious quality Q.

7. Bradley's regress

States of affairs however give rise in a particularly acute way to a problem known as "Bradley's (infinite) regress." This is so called, because it is typically traced back to Bradley, although, as we shall see, something like it had been considered before Bradley. It arises, I think, for propositions as well[9], although, admittedly, the fact that states of affairs do not supervene on their constituents makes it more severe or even unique for states of affairs[10]. Bradley's regress has been taken very seriously by Russell and seemingly Frege (who does not refer to Bradley) and after them a great deal of analytic philosophers have more or less explicitly discussed it, including Wittgenstein, McTaggart, Bergmann, Grossman, Armstrong, Hochberg, Loux, Vallicella. Here is how Bradley poses it[11]:

> We may take the familiar instance of a lump of sugar. This is a thing, and it has properties. ... It is, for example, white, and hard, and sweet; but what the is can really mean seems doubtful. Sugar is obviously not mere whiteness, mere hardness, and mere sweetness; for its reality lies somehow in its unity. ... The word to use, when we are pressed, should not be is, but only has. The whole question is evidently as to the meaning of has; and, apart from metaphors not taken seriously, there appears really to be no answer ... [A possible answer is:] 'There is a[n independently real] relation C, in which A [a thing] and B [a property] 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

9 Cf. F. Orilia, "Stati di cose, esemplificazione e regresso di Bradley", «Rivista di Filosofia», 97 (2006), pp. 349-385.

10 Cf. W. Vallicella, "Three Conceptions of States of Affairs", «Noûs», 34 (2000), pp. 237-259, and "Relations, Monism, and the Vindication of Bradley's Regress", «Dialectica», 56 (2002), pp. 3-35.

11 Cf. ch. 2, pp. 16-18 in F. Bradley, *Appearance and Reality*, Swan Sonnenschein and Co., London 1893.

> no longer is predicated of them. Something, however, seems to be said of this relation C, and said, again, of A and B. And this something is not to be the ascription of one to the other. If so, it would appear to be another relation D, in which C, on one side, and on the other side, A and B, stand. But such a makeshift leads at once to an infinite process. The new relation D can be predicated in no way of C, or of A and B; and hence we must have recourse to a fresh relation, E, which comes between D and whatever we had before. But this must lead to another, F; and so on, indefinitely. Thus the problem is not solved by taking relations as independently real.

In a nutshell, as far as states of affairs are concerned, the regress can be characterized as follows. Consider a certain state of affairs *Fa* (a certain object a exemplifying property F). Now, given that states of affairs do not supervene on their constituents, a and F could exist without *Fa* existing. We thus need an (ontological) explanation of why *Fa* exists (cf. Vallicella, cit.). This leads us to postulate a relation of exemplification, E, linking F and a, so that there is also *EFa*. And so on: *E'EFa*, *E"E'Fa*, ...

8. Bradley's regress before Bradley

Bradley, as far I know, is the first to see the problem clearly at the level of property attribution and thus of monadic states of affairs, i.e., of the type *Fa*. He focuses in fact on a certain object's having a certain property (a lump of sugar that is hard, white, sweet). The regress is also considered by Meinong in a paper of 1899[12], but he focuses on a relational state of affairs (or perhaps proposition) with two relata, a fact, we may say, of the type *aRb*. Similarly, Leibniz, in a piece written in his Paris period (1672-1676) (Leibniz, *Sämtliche Schriften und Briefe* VI, 3, p. 399), brought to our attention by Mugnai[13], focuses on a relational fact just like Meinong. Here is the relevant passage in Mugnai's translation:

> It is no wonder that the number of all numbers, all possibilities, all relations or reflections are not clearly understood, because they are imaginary beings to which nothing does correspond in the real world. 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.

We can go further back: according to Gaskin[14] the articulation of a similar regress can be found in Aristotle (in the discussion of part and whole of Book Z

12 Cf. F. Orilia, "States of affairs. Bradley vs. Meinong", in *Meinongian Issues in Contemporary Italian Philosophy*, ed. by V. Raspa, Ontos Verlag, Frankfurt 2006, pp. 213-238.

13 Cf. M. Mugnai, "Leibniz and Bradley's regress", «Leibniz review», 20, pp. 1-12, 2010.

14 *The Unity of The Proposition*, cit., ch. 8.

of the *Metaphysics*), in the Scholastic thinkers Abelard, Avicenna, Scotus, Ockam, Buridan, Gregory of Rimini, Suarez and can also be compared to the notorious Third man problem in Plato and Aristotle. It must be noted, however, that the Third man problem derives from the questionable assumption that each form can be self-predicated (e.g., the form MAN is a man) and no such assumption is invoked in Bradley's regress.

As Mugnai well explains, Leibniz's recourse to something akin to Bradley's regress has to do with the idea that relations are founded on properties and do not exist as mind-independent entities, and the same can be said of Medieval thinkers who rely on similar arguments. As an example Mugnai considers the following passage by Gabriel Biel (1420-1495) (taken from *Super Primum Sententiarum*, I, Dist. XVII, q. I art 2B):

> and 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, then we have what we want; if the second, one may ask about c appealing to a new d, and then we will have a process to infinity and it is not legitimate that one says that a is distinguished from b by itself, because a cannot be without b, because a relation cannot be without its foundation.[15]

Another interesting passage in the same spirit can be found in Ockham. Let me quote from the reply kindly provided by Paul Spade, when I asked him in a recent correspondence what he thought was the best evidence of something in the vicinity of Bradley's regress in Scholastic philosophy:

> A perhaps better passage is in Ockham, *Summa logicae,* Part 1, Chap. 51. There Ockham is arguing against the need to posit relational entities. In particular, he argues against the view (lines 38-40) that we need to suppose some kind of "relational" entity to account for the unity of form and matter in a composite, of part with part in a continuum, of accidents with their "subjects", and of "spirit" with a bodily nature (presumably in the human being). He says (lines 206-209): "For the same question would remain about that middle thing [i.e., the hypothetical "respective" or "relational" entity]: how does it make a one with that in which it is posited? For it is either by itself, and [then] by the same reasoning we should have stopped at the first "unibles". Or else by another union, and then we proceed to infinity.
>
> In effect, he is arguing, if there's some "relational" entity needed to unite form and matter, etc., then what unites the relational entity itself with the form and with the matter? If we just say the relational entity is united all by itself with the form and with the matter, then we might as well say that the form and the matter are related all by themselves to begin with. On the other hand, if we appeal to yet another relational entity to link the form to the first relational entity, then we're off on an infinite regress.

15 I report here Mugnai's translation when offered and otherwise, in the last part of the passage, my own.

9. Fact infinitism

But why did all these thinkers take for granted that Bradley's regress, or whatever regress in its vicinity they were considering, is vicious? Part of the answer may have to do with the fact that, following Aristotle, in Scholastic philosophy and similarly in Leibniz it was taken for granted that there cannot truly be an actual infinity. For Bradley's regress seems to lead us to acknowledge an actual infinity of relations or relational facts. Consider again, for instance, the version presented above, based on a certain given fact *Fa*. This fact led us to assume that there is also the fact *EFa* and then *E'EFa*, and so on without end. In sum, where we would think there is just one simple fact, *Fa*, there is an endless totality comprising, in addition to *Fa*, the further facts *EFa*, *E'EFa*, etc.

The above passage by Leibniz is particularly interesting in this respect, for he explicitly seems to take the Bradleyan regress to be vicious for the same reason for which we cannot coherently speak of "the number of all numbers", or, as we may put it in terms of sets, "the set of all numbers." There is a long tradition that considers talks of this kind problematic, because they jeopardize the intelligibility of the part/whole relation. For consider, e.g., the set of all natural numbers and the set of all even numbers. On the one hand, we should say that the latter is smaller than the former, since the even numbers are comprised in all the natural numbers. On the other hand, we should say that they are of the same size, since they are both infinite. Leibniz accepts this line of reasoning and concludes that an actual infinity cannot be real and it must thus be merely ideal[16].

The fact that an actual infinity seems to defy the intuitively valid principle that the part is smaller than the whole was often referred to as a "paradox of infinity." As is well known, however, in the second half of the 19th century, Cantor and Dedekind turned this "paradox" into a definition of what it is to be an infinite set. Their idea is that a set is infinite precisely when it is of the same size as one of its parts (a proper subset), in that the whole and the part are in a 1-1 correspondence.

Nowadays, we take for granted that there can be an actual infinity. Indeed, after Cantor, we even accept that there are infinite levels of actual infinities. The refusal of the infinite cannot thus be a reason for regarding Bradley's regress as vicious. This opens the way for a new look at the regress and more generally to states of affairs. Just as the paradox of infinity was turned into a definition of infinity, we may perhaps transform the Bradleyan infinite regress into an account of the nature of facts. We saw above that the existence of a fact *Fa* seems to require an explanation of what makes it the case that *Fa* exists over and above its constituents F and a. Having set aside any fear of the infinite, we can answer that the existence of *EFa* provides the explanation and that the existence of *E'EFa* in turn provides an explanation of the existence of *EFa*, and so on ad infinitum. In other words, the existence of each fact *Fa* requires for its existence an infinity

16 Cf. M. Mugnai, *Leibniz. Vita di un genio tra logica, matematica e filosofia*, monographic issue of *Le Scienze - I Grandi della Scienza*, V, n. 29, November 2002.

of other facts: *EFa*, *E'EFa*, ... This regress is not vicious because (i) these are all distinct facts, not an unending sequence of unsuccessful attempts to analyze one single fact (as Russell worried); (ii) Cantor and Dedekind allow us to speak coherently of actual infinities.

I call this approach to states of affairs *fact infinitism*. Here I cannot engage in a full defense of it. Let me then end by referring to my previous works on this topic[17] and to Gaskin (*The Unity of The Proposition*, cit.), who defends a similar view, albeit focusing on propositions rather than on states of affairs.

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17 In addition to the works mentioned above, cf. "Bradley's Regress: Meinong vs. Bergmann", in *Ontology and Analysis, Essays and Recollections about Gustav Bergmann*, ed. by L. Addis, G. Jesson and E. Tegtmeier, Ontos Verlag, Frankfurt 2007, pp. 133-163 and "Bradley's Regress and Ungrounded Dependence Chains: A Reply to Cameron", «Dialectica», 63, 2009, pp. 333-341.